# Journal of the Vivekananda Institute of Medical Sciences

*(Official Publication of Ramakrishna Mission Seva Pratishthan Vivekananda Institute of Medical Sciences)*

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# JOURNAL OF THE VIVEKANANDA INSTITUTE OF MEDICAL SCIENCES

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The Title page should have the title of the article, concise and informative; initial(s) and surname of each author, with the highest academic degrees (not more than two degrees and/or diplomas) of each author, their designation and department alongside.

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Appropriate scientific nomenclature giving both genus and species should be italicised, with an initial capital and abbreviation for genus only, after a full spelling at first mention, thus: Mycobacterium Tuberculosis, the Myco. Tuberculosis. Drugs should be given their approved names, not their propriety names. Spelling should confirm to the Oxford English Dictionary.

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Dr. Pranamita Ray (Associate Professor, Dept. of Pathology)

Dr. Debjani Sinha Ray (Assistant Professor, Dept. of Radiology)

Dr. Suman Das (Visiting Surgeon, Maxillofacial Unit).

Dr. Jayati Sengupta (Consultant Paediatrician, A.M. Medical Centre & Manipal Hospital, Kolkata)

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# Editorial

## A Month at The All India Institute of Medical Sciences



**Fig. 1 : Academic Block, All India Institute of Medical Sciences, New Delhi**

The All India Institute of Medical Sciences was the brainchild of Rajkumari Amrit Kaur, the first Union Minister for Health in the Nehru cabinet of 1947, and only woman member thereof. She was the daughter of Raja Harnam Singh of Kapurthala. Educated at Oxford University, she met Gandhiji in 1919 and was his personal secretary for 16 years until his death. She was imprisoned by the British twice: for participating in the Dandi March of 1930 and the Quit India movement in 1942.

As the Union Health Minister of newly-independent India she felt the need for an Institute that would not only train future specialists, but also provide service to the medically needy and produce scientific medical research appropriate for the nation. While piloting the bill that would lead to the establishment of AIIMS through Parliament she said, "It has been one of my cherished dreams that for post-graduate study and for the maintenance of high standard of medical education in our country, we should have an Institute of this nature in India which would enable our young men and women to have their post-graduate education in their own country, in their background with the necessary experience that we would like to give them to do research in the various spheres of medical education." Initially established with financial aid from the Government of New Zealand, AIIMS consistently ranks amongst the best medical Institutes in India and the world, so that the Union government is opening similar Institutes in every state of the country.

Like many of my contemporaries, I sat both the AIIMS undergraduate and postgraduate entrance examinations, more as practice for the State and National entrance examinations than out of any hope of qualifying for a general seat. Since then I have visited AIIMS several times for conferences and workshops, and each time would regret that I never had the chance to study there.

I recently secured a travel grant to attend any Head and Neck Department in India for a month, and immediately decided to spend it at AIIMS. It transpires that the Institute has an established system of short term observerships, which can run from a week to several months. The would-be observer must be sponsored by his or her home Institute, after securing permission from the Head of the Department they wish to visit. The paperwork was surprisingly straightforward (at the end of the day it is a Government Institute!) and on the 10th of March at 9am I found myself at Gate Number 1 of AIIMS (Fig1.) New Delhi. The administrative fee for any observership is Rs 2000 a month, on payment of which I was issued an ID card describing me as a student: after 30 years I had finally managed a teenage dream!

For the next 4 weeks I immersed myself in the workings of the Department of Otolaryngology Head Neck Surgery. It is no small unit – 15 faculty and 55 residents (MS/SR/MCh), not to mention the rotating undergraduate students. Each of the 3 units cycles between an OPD (with Minor OT) day, a theatre day, and an academic day. Every day there are 5 dedicated ENT theatre lists in the main campus surgical block – one local anaesthetic list and 4 general anaesthetic lists – with further lists at the National Cancer Institute in Jajjar which is also run by AIIMS. The average OPD footfall is between 120nand 150 new cases every day, with patients coming from all over the country. One thing that immediately struck me is the complexity of the cases, but then this is the apex government health care Institute of the country, and they cannot refer anywhere else. Apart from attending OPD and Minor OT, I attended the Head and Neck tumour boards (held twice a week), Skull Base clinic (twice a month) and Radiology meeting. In theatre I closely observed 24 complex Head Neck/Skull Base procedures. Apart from the clinical experience there were numerous little tips to be noted, from theatre setup to instrument clerking, which contributed to the efficiency of the Department. Although in surgical training we have moved on from the days of 'see one, do one, teach one' watching skilled surgery in real time with the ability to discuss areas of uncertainty is, in my opinion, an extremely educative experience.

I am extremely grateful to our Institute for agreeing to send me to AIIMS, to the authorities at AIIMS for facilitating my stay, and to the faculty and residents of the Department of Otolaryngology Head Neck Surgery at AIIMS for their kindness and hospitality. I would commend a short term observership to anyone looking for ways and means to improve their own Departments both academically and clinically.

**Bibliography :**

1. Grover V, Arora R. *Rajkumari Amrit Kaur. A biography of her Vision and Ideas*. 1998 Deep & Deep Publications.
2. Srinivas V. *AIIMS Act 1956 The Parliament Debate* 2016, K L Wig CMET AIIMS.

Ranjan Raychowdhury, Executive Editor; Professor, Department of ENT & Head Neck Surgery, RKMSP VIMS

Original Article

# Comprehensive Management of Cleft Lip and Palate — Our Institutional Protocol

Suman Das[1], Kaustuv Roy[1], Sayantan Nag[2], Dipsankar Jana[3]

**Abstract :**

Babies born with clefts of the lip, and the alveolus or palate, or both, require multidisciplinary, highly specialised treatment from birth to early adulthood. These defects arise in about 1·7 per 1000 liveborn babies, with ethnic and geographic variation. Effects on speech, hearing, appearance, and psychology can lead to long-lasting adverse outcomes for health and social integration. Typically, children with these disorders need multidisciplinary care from birth to adulthood and have higher morbidity and mortality throughout life than do unaffected individuals. We have outlined the various protocols we use in the management of such babies in our institute and presented outcomes of few of such cases done here.

**Key Words :** Cleft Lip; Cleft Palate; Palatoplasty

**Introduction :**

No greater problem exists in the entire field of surgery than the successful treatment of a patient suffering from complete, bilateral, cleft lip and palate. Deficiencies in facial and dental development, and in speech and hearing, remain frustratingly common and may be accompanied by psychosocial problems. The objectives are easily stated, but not so easily achieved. They are : to produce a normal appearance, normal speech, and normal dental occlusion. Of the three, the last is probably the least important; the first and second are both very important, but perhaps normal speech requires just a little more emphasis than normal appearance. Successful outcomes require multi-disciplinary, highly specialised treatment from birth to early adulthood, and a lifetime commitment to the maintenance of oral health. Treatment starts with perinatal nursing care and primary operation, and is often followed by further procedures, sometimes into early adulthood. Care for children born with these defects generally includes many disciplines—nursing, plastic surgery, maxillofacial surgery, otolaryngology, speech therapy, audiology, psychology, genetics, orthodontics, and dentistry — but it forms only a part of the clinical load of every area, meaning that care has tended to be fragmented. This fragmentation of care has led to substantial variations in management, which continue to cause controversy. Furthermore, in both developing and developed countries, standards of care for patients with cleft lip, cleft lip and palate, or cleft palate alone remain a cause for concern.

**Incidence :**

Approximately 1 in 700 babies (1,200 babies) in the U.K. are born with Cleft Lip and/or Palate (CLP) malformations; it is the most common craniofacial congenital abnormality in the U.K. (NHS, 2018).

The overall incidence of CLP is 1 in 1,000 live births and isolated cleft palate occurs in 1 in 2,000 live births. The typical distribution of cleft types is Cleft lip alone: 15% ; Cleft lip and palate:

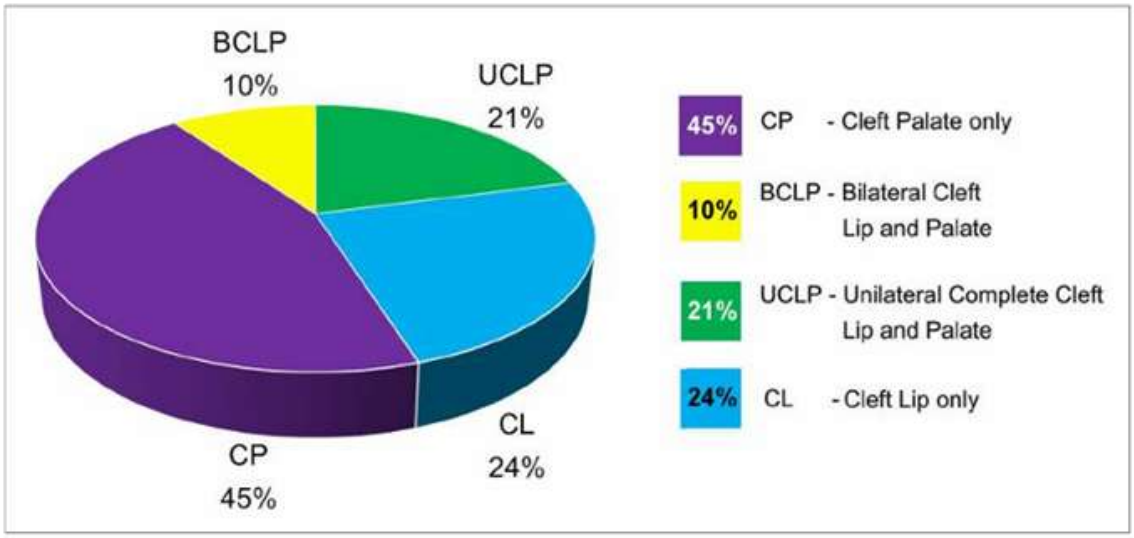
[1]Senior Consultant, [2]Senior Medical Officer, [3]House Surgeon, Maxillofacial Surgery Unit, RKMSP.

45%; Isolated cleft palate: 40%. Many epidemiological studies indicate that one parent affected with cleft has a 3.2% chance of having a child with CLP and a 6.8% chance of having a child with isolated cleft palate (Grosen et al., 2010).

Often, the cause of the cleft is not known but there may be a family history of clefts, environmental factors or a genetic diagnosis; up to 50% of babies with isolated cleft palate have been found to have a genetic cause for the cleft. The Cleft Registry and Audit Network (CRANE) was set up by the UK Department of Health in 2000 to collect information about all children born with a cleft lip and/or palate in England, Wales and Northern Ireland. CRANE (2018) states:

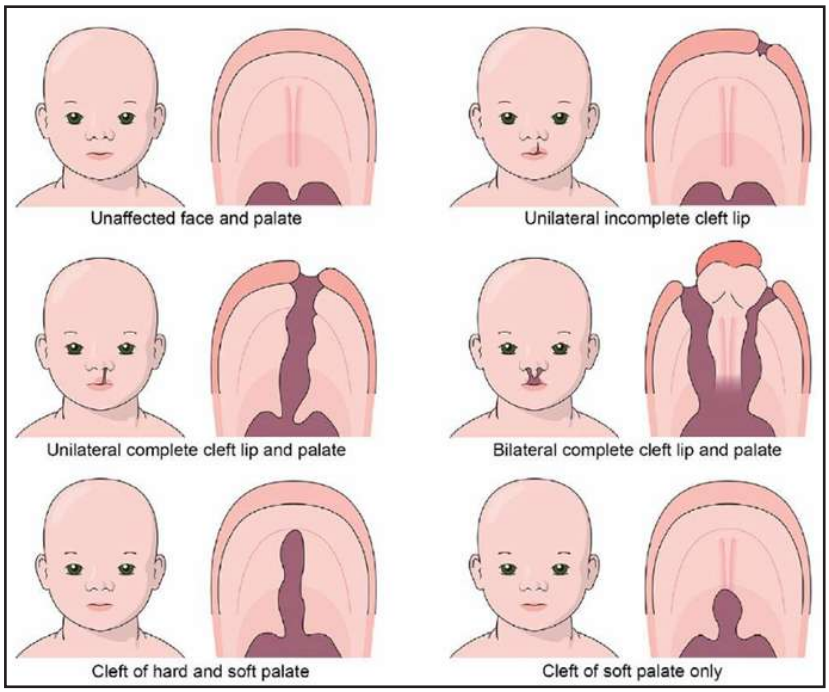


**The Boy and his father both having cleft palate**




**Cleft type of children born with a cleft lip and/or palate in England, Wales and Northern Ireland average between 2008 and 2017 (CRANE, 2018)**

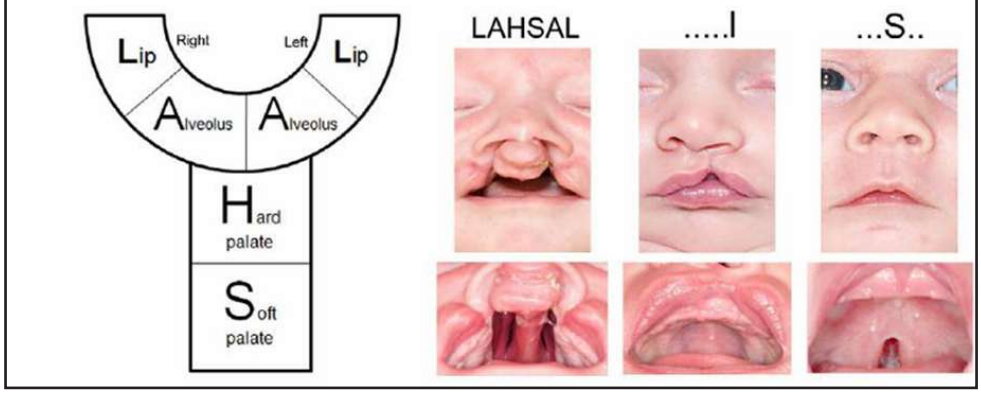
## Categories and Classification :




### Variations in Cleft Lip & Cleft Palate :

There are different methods of describing cleft types e.g. the LAHSAL code. This 'code' indicates the area of the mouth affected by the cleft. An uppercase letter indicates a complete cleft, a lowercase letter indicates an incomplete cleft, and a dot or dash indicates a non-affected area.

- LAHSAL complete bilateral cleft lip and palate;
- ……l left incomplete unilateral lip only, no palate involvement;
- …S.. soft palate only, no lip involvement.



## Protocol for Management :

Cleft lip and palate services: care pathways and location of care.

| | Antenatal | Birth - 8 weeks | 9 weeks - 2 years | 3 - 5 years | 6 - 10 years | 11 - 20 years | 21 years |
|---|---|---|---|---|---|---|---|
| Local obstetric units | Diagnosis with ultrasound imaging confirmed by specialists from main centre | Local maternity team to contact cleft team within 24 hours of birth | - | - | - | - | - |
| | Local obstetric unit to contact cleft team within 24 hours of diagnosis | | | | | | |
| Main "hub" cleft centres | Contact by clinical nurse specialist within 24 hours of referral | Visit by clinical nurse specialist within 24 hours of referral | Lip repair at 3-6 months | Speech and language assessment and management | Orthodontic assessment | Definitive orthodontic care | Record of skeletal operation |
| | Provide printed information | Specialist advice on feeding | Closure of palate at 6 – 9 months | ENT assessment and audiology management if necessary | Alveolar bone grafting r with associated orthodontic care | Team assessment for orthognathic surgery | |
| | Negotiate face-to-face meeting | Cleft team meets patients | ENT assessment and management if necessary | Operation to revise lip and velopharyngeal surgery of necessary | Treatment and planning for skeletal surgery | | |
| | Offer contact with Cleft Lip and Palate Association | Lip repair | Psychological support offered and available at all team clinics | Psychological support before attendance at school | Appropriate operation as required such as soft tissue, nose, implants | | |
| | | | | Operation to revise lip and velopharyngeal surgery if necessary | Psychological support before attendance at school | Ensure complete set of records at 15 and 20 years | |
| | | | | Full set of records at 5 years | Management of speech and hearing problems | | |
| | | | | | Review by main team | | |
| | | | | Dental advice or intervention, or both, if necessary | Records at 10 years to include orthodontic treatment | | |
| "Spoke" units | - | Surveillance of children for coexisting conditions and syndromes | Hearing test at 10 months if treatment for cleft palate is necessary | Speech and language therapy | Management of speech and hearing problems | Continuing orthodontic treatment | - |
| | | Neonatal hearing test within first few days of birth for all babies | Annual hearing assessments up to 3 years of age if cleft palate | ENT and audiology assessment if necessary | | Paediatric and restorative dental care Close liaison with "hub" | |
| | | | | Local orthodontics | | | |
| | | Genetic counselling for parents if indicated | Speech and language therapy assessment | | | | |
| Primary care | - | Education about dental health in liaison with main centre | Education about dental health in liaison with main centre | Routine preventive dental advice and treatment | Routine preventive dental advice and treatment | Regular dental care | Regular dental care |
| | | | Routine child health surveillance | Speech and language therapy | Speech and language therapy | | |
| | | Routine child health surveillance | | | | | |
| | | Routine hearing test at 8 months | | | | | |

*S.D. Colbert et al. / British Journal of Oral and Maxillofacial Surgery xxx (2015) xxx–xxx*

*Colbert SD, et al. Contemporary management of cleft lip and palate in the United Kingdom. Have we reached the turning point? Br J Oral Maxillofacial Surgery (2015)*

**How Do We Do It :**

**History —** Whenever a patient comes to our OPD with clefts, we record the antenatal information of their mother, birth history, mode of delivery, birth weight, timing of delivery, any history of NICU admission after birth, history of asphyxiation, immunisation schedule and family history.

**Clinical Photographs —** Clinical photographs are recorded of both patients and their parents if they too have clefts.

**Parental counselling —** Babies especially with cleft palate are encouraged for breast milk feeding which in turn helps for growth of palatal muscles. Parents are advised to send their babies to regular kindergarten/preschool and junior schools with other babies which helps accustom them toa normal environment and prevents them from being bullied by other babies.

**Speech —** The mothers are encouraged to give the child singing lessons with Indian classical music with harmonium, as this is often more easily available than specialised speech and language therapy.

**Preoperative Investigations —** The complete blood count, random sugar, serology, coagulation profile, blood groupand echocardiography (to exclude midline cardiac defects) are obtained.

**Submucosal Cleft Palate Diagnosis —** Bluish hue along the midline of palate, nasal regurgitation due to velopharyngeal insufficiency, nasal intonation of speechin spite of having an intact soft palate all indicate possibility of a submucosal cleft.

**Dental problems —** Collapsed upper arch, caries prone, crowding of teeth, supernumerary teeth, hypodontia andhyperdontia may all complicate this condition.

**Timing of Surgery —**

Naso alveolar moulding (NAM) – If needed

a) Cleft Lip – 3 months

b) Soft Palate – 9 months

c) Hard Palate –18 months

d) Alveolar bone graft +/– Grommet Insertion - 9- 12 years

e) Post surgical orthodontics – 13 years

f) Rhinoplasty +/- Secondary Lip revision- !4 years

g) Secondary jaw deformity – 18 years onwards

*N.B – **Neonatal cleft lip repair** was previously started in our unit in late 1990 for the first time in India, where the cleft babies were underwent lip closure within 72 hours of birth. Criteria was body weight more than 3 kg, without any other congenital anomalies. This was mostly done to reduce female foeticide and to reduce social stigma of babies especially females born with cleft lips.*

**Surgical Procedure :**

**Primary Cleft Lips** are closed with modified Millard's rotation and advancement flap and Mohler's technique.

**CASE : 1**



**Pre-Operation**



**Post-Operation**

**CASE : 2**



**Pre-Operation**



**Immediate Post-Operation**



**2 Weeks Post-Operation**

**CASE : 3**

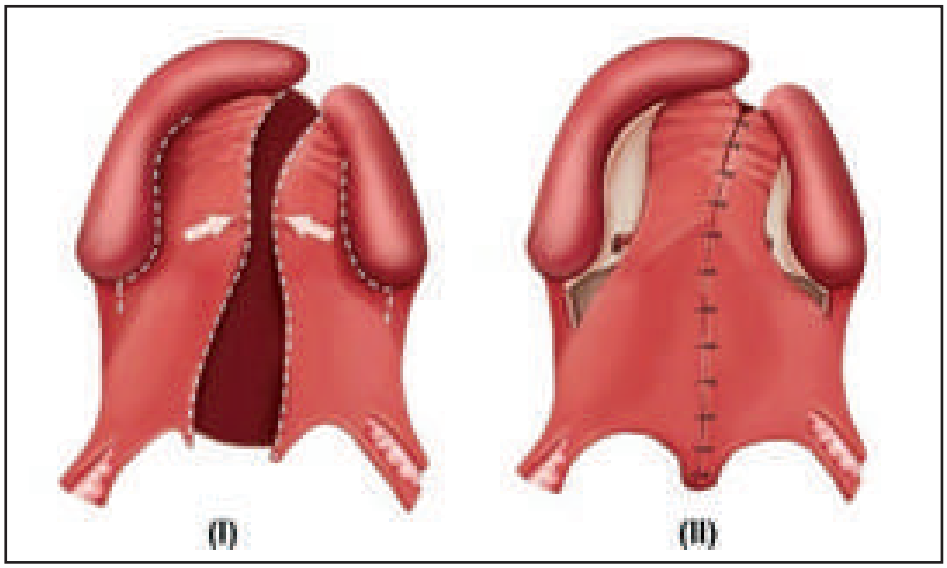


**Pre-Operation**



**Post-Operation**

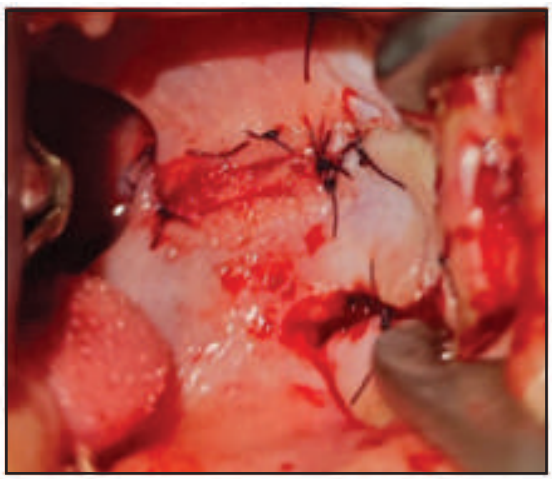
**Cleft Palate repair is mainly done by Von Langenbeckís palatoplasty technique.**



**CASE : 4**



**Pre-Operation**



**Post-Operation**

**CASE : 5**



**Pre-Operation**



**Post-Operation**



**Month follow-up of Adult Cleft Palate**

**Cleft Rhinoplasty**

**CASE : 6**



**Pre-Operation**



**Post-Operation**

**Secondary Lip Correction**

**CASE : 7**



**Pre-Operation**



**Post-Operation**

**Post Surgical Orthodontics**

**CASE : 8**



**Pre Orthodontic Malocclusion**



**Post Orthodontic Occlusion**

**CASE : 9**





**Pre Orthodontic Malocclusion**



**Post Orthodontic Occlusion**

**Long Term Follow-up :**

**CASE : 10**





**25 Year Follow-up of Neonatal Bilateral Cleft Lip**

## CASE : 11

### 16 Year Follow up of Neonatal Bilateral Cleft Lip






**Reference :**


1. Colbert SD, et al. Contemporary management of cleft lip and palate in the United Kingdom. Have we reached the turning point? Br J Oral Maxillofac Surg. (2015).
2. Mossey PA, Little J, Munger RG, Dixon MJ, Shaw WC. Cleft lip and palate. The Lancet. 2009 Nov 21;374 (9703):1773-85.
3. Jones M, Volcano J. Cleft Lip and Palate. IMI National Guideline 2018;Version 2:24-28. Available from: http://www.imi.org.uk.
4. Manchester W.M, The repair of bilateral cleft lip and palate. Brit. J. Surg., 1965, Vol. 52, No. 11, November.
5. Millard, D. R, Morovic, C.G. (1998). Primary Unilateral Cleft Nose Correction: A 10- year follow-up. Plastic & Reconstructive Surgery, 102(5); 1331-1338.
6. Subramanyam D. An Insight of the Cleft Lip and Palate in Paediatric Dentistry - A Review. J Dent Oral Biol. 2020; 5(2): 1164.
7. Reidy J.P. The Other 20 Percent: Failures of Cleft Palate Repair. British Journal of Plastic Surgery; 12: 215.

**Original Article**

# Raja Yoga — Philosophy and Neurology : Preliminary Considerations

**Guruprasad H S**

**Editor's Introduction :**

*In this fascinating essay, the author draws parallels between the philosophy of Raja Yoga and Neurology.*

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जननीं सारदां देवीं रामकृष्णं जगद्गुरुम्।
पादपद्मे तयोः श्रित्वा प्रणमामि मुहुर्मुहुः।।

*Offered in worship to the Holy feet of the Divine Mother of the universe, the Absolute Truth, with prayers for the grace of Sri Ramakrishna*

**Introduction :**

The objective of this preliminary work is two fold. One, is to arrive at the Truths taught by the teachers of *Vedanta* (an understanding of the classic scriptures with special reference to the teachings of Sri Ramakrishna and Swami Vivekananda) through a framework of simple reasoning applied to universal human experiences. With this as the basis, to then try and understand the implications of these Truths to entities which we cannot separate from our experience of ourselves and reality – mind and consciousness. Two, to explore ways in which we may relate religious self experiences as described in *Raja yoga* (with specific references to the experiences and teachings of Sri Ramakrishna), to the structure and function of the nervous system which serves as the instrument of obtaining these experiences in the human being. As such, this work is a preliminary attempt, limited by personal understanding and should be viewed as a theorisation. It is meant to be speculative and not authoritative. The goal is to stimulate thinking and introspection and thence further exploration into the Truths and experiences of the Vedantic tradition and its relation with contemporary observations, thinking and approaches. Though the presentation is of an impersonal nature, it deals with the nature of entities which form the very basis of all persons – that is, mind and consciousness. As Sri Ramakrishna taught, as many faiths, so many paths. Each individual may connect to the reality of themselves and the universe in uniquely different ways. Hence, the approach taken in the deliberations that follow may not be suited to all. If any reader feels uncomfortable by being confronted with arguments and reasoning relating to this impersonally-personal subject, specially if it conflicts with their own understanding, then proceed no further. But, if the reader is willing to undertake this study with a calm, unaffected and critical outlook, with a view to introspect into the nature of oneself, then welcome to this journey.

**Philosophy : Quest for Truth**

We often hear the phrase, change is the only constant. We see the world of change around us and in us. Though the time scales vary vastly, we recognise that no entity that we perceive through our senses or our mind, including our senses and mind remain without change. We hear giddy ideas of universe creations, both traditional and modern, where even space and time have resolved into a non-existence or a contracted existence or a different type of existence, depending on which theory excites our mental palate. We experience our own bodies aging, we are aware of the fickleness of our own minds and we are witnesses to our own personalities being moulded sometimes by

Assistant Professor, Department of Paediatrics, RKMSP, VIMS

experience and at other times by will. As long as we have awareness, our own consciousness is the only constant in our lives, but even that seems to switch off in a state of deep sleep and apparently disappear in the amnesia of an unconscious state. To top it all, our meagre lives, barely specks in the seemingly unlimited vastness of a complex universe, come to being, play and dissolve away in the inevitability of time. The very existence of our individualities, which we so cling to, are hidden from us before the being of birth and after the apparent non-being of death. And yet, we human beings struggle endlessly against the futility of dying with the impossibility of being able to conceive our own non-existence, beat against the cage of a deterministic universe with raging blows of freedom, struggle against discord in a universe where every particle of existence is unlike every other particle with unending quests for concord and peace, work against the selfishness of every gene in our own bodies working toward its own survival and propagation over and above all others with feelings of oneness of unselfish love and sacrifice, fight against every form of weakness inherent in our limited frames of existence confronting a merciless 'invincible' nature with indefatigable expressions of strength and strive to be aware of the very depths of knowledge of a vast complex universe in spite of being limited in this framework of our tiny brains and so on. Most of us neither drown in futility nor in fatalism. But are we destined only to be endless waves in the ocean of time, made self-aware by an unseen chance, cry out in a three-day existence followed by forever silence? Or is there a way which leads beyond this prison of relative existence?

Change implies cause and effect. Every entity we experience is the effect of a preceding cause and is in turn the cause of other effects. But is this process eternal both ways in time? While it is not practically possible to follow effects to eternity, we may speculate the possibility of cause and effect proceeding eternally backwards in time. However, if that is so, if cause and effect can proceed backwards eternally, since that process never stops, it will imply that it never began. Can we accept our current reality as having no starting point at all? Common sense would suggest no. If we concede that existence had a starting point, then that point cannot have a preceding cause. Which means that the chain of cause and effect itself predicts its own breakdown.

What could be the nature of this hypothetical causeless cause of all existence? The first idea that comes to mind could be that this entity is unlimited. Why so? If this entity is limited, then the next question would be what is it limited by? This would imply the existence of another entity limiting it through some characteristic. How do these two entities then differ from each other and what is the 'cause' of this difference in characteristic between these two entities leading to this limitation? This implies the existence of an even more fundamental entity which led to these effects. Which then inevitably brings the conclusion that this entity is bound by another cause thus defeating its own definition.

So now we have postulated an unlimited causeless entity. Again, with the same reasoning as above, this entity can only be one or rather as some of our traditional philosophers like to call it - *non-dual.* If 'one' exists, it implies the existence of 'another' one. So, the word 'one' does not seem ideal. We will just imply its existence by calling it not two. Or *non-dual.* Non-duality implies indivisibility, meaning that this reality cannot be divided into two which would then make it two entities. One would realise that all these different words mean the same thing.

Again, this nondual, unlimited, causeless entity is eternal. Why? If it changes, then what is effecting this change? Which brings us back to the implication that there is another entity effecting this change going against our definition.

So, by simply considering that the chain of cause and effect cannot go eternally backwards, we have postulated a causeless cause of all of existence, which is indivisible, eternal, unlimited or infinite and non-dual. If anything can be called the *Absolute Truth,* an entity whose existence doesnot depend on the existence of any other, it would be this.

Space is divisible, even in the simplistic sense that we can distinguish two points in space by their differing locations. Hence this entity we just postulated, being indivisible, is also beyond space. Time implies change, hence this entity we postulated, being eternal, is beyond time.

Hence, change is not the constant. The idea of change itself may imply that there hasto be a changeless entity at the basis of it all. But how does this practically help us? If it were true that there is an Absolute Truth as the ultimate reality of existence, what difference does it make to us in our predicament? An infinite reality beyond all?

Cause and effect is perhaps the most common observation of the nature of the universe. But what about the animate? Surely the same causeless entity is the source of the animate as well. But with what implications to the relation between conscious beings and the causeless entity? Let us follow the same approach. The most basic experience of consciousness is that at least all conscious human beings experience themselves as individuals. Isnot that so? What is individuality? It can be said to be a distinct set of characteristics which define that individual, and distinguish from everything and everyone else. What defines 'me' and separates 'I' from you is this sense of individuality. We started with the concept of change, now let us ask a simple question – can individuality change? Since it is a defining set of characteristics, which makes the individual unique, if those characteristics change then will it still be the same individual or a different one? The answer to this seemingly simple question defines the central idea from which a whole world view may be developed. Indeed, the differing philosophies of the world may be characterised by the answer they give to this question. The answer we will give to this question herewill be that we will accept that individuality cannot change. If it does so, then since the defining characteristics are changed, it will be a different individual. But none of us accept that as our bodies changed from childhood to adulthood we are not the same person. None of us feel comfort in the idea that our constantly changing thoughts and feelings represent different people at each point in time. We all live convinced by the experience that we are one and the same person, though every entity that we identify with, and call as ourselves, be it the body or mind is undergoing constant change. So then, if individuality cannot change by definition, what are we if not this changing body and mind?

In our initial consideration, we postulated a changeless entity. We came to the idea that this changeless entity is the Ultimate Reality of the universe, of all existence. We now have another idea that individuality is also a changeless entity. Can there be two changeless entities? If there were, then we would again ask the question: what is the difference between these two changeless entities? How did that difference come about? As before, in our first considerations, we will have to admit that a changeless entity must be beyond cause and effect, unlimited, eternal, infinite and indivisible. And most importantly non-dual. So if there cannot be more than one changeless entity, then the changeless Ultimate Reality and the changeless Individuality are one and the same. And since individuality (the name itself suggests that it cannot be divided) is the most basic experience of consciousness, this changeless Individuality that we arrived at should be the most fundamental experience of

consciousness. If we digest this simple Truth, arrived at by a simplistic analysis, then as per (*Advaita) Vedanta* philosophy, we have attained to the Ultimate Reality of all existence. There is nothing else left to be done. The purpose of human birth has been fulfilled.

**The Consciousness of Non-duality :**

Consider Infinite Consciousness as we postulated. Nothing exists except this. And it is Eternal and changeless. Now suppose it wants to say "I am". Now the concept called I is always associated with a sense of individuality as we experience all through our lives. Now this I, being an individual, is defined by a set of characteristics unique to that individual, which distinguishes that individual from all else. But, if nothing exists except this particular Individual, how to define its set of characteristics? How to distinguish it, if nothing else exists except it? In relation to what or who should it be defined? Also who is there that will define it and with respect to whom or what? All characteristics are defined by their expressions in relation to an experience/in relation to something/in relation to someone. If we want to know a characteristic called wetness, for example, water is wet – we need water, we need a person who experiences the wetness of water, and we need that person to distinguish the experience of wetness from other experiences so that it can be recognised as a distinct experience of wetness in contrast to all other experiences. But if water is all that exists as an infinite ocean which let us say is conscious, and it is changeless, will it be possible for it to know itself without differentiating itself as knower, known and knowledge?

So we come to this faint idea, that this Infinite ocean does not have a sense called 'I'. Because there is no entity which exists other than That. Now how to distinguish 'I' from that which is 'Not I' if nothing else exists? And how to know the characteristic of 'I' if it is changeless and never 'express itself in anyway' (expression requires change)? So this Infinite consciousness cannot say 'I'.

Can this Infinite ocean say 'am' at least? Well, the concept of 'am' exists and has meaning only in relation to the concept of 'am not'. If an entity is Eternal and changeless, then it doesnot know something called 'am not'. Is it then possible to have a concept called 'am'?

All thought requires three entities – a thinker who is the subject, an object about which the thought process is occurring and the thought itself - even if the thought is about oneself, we are psychologically distinguishing an entity called (a) the thinker (b) another entity called the one about whom the thought is and the (c) process of thinking itself. If there is no duality, no differentiation of these three, is it possible to have a thought? All words spoken, need three entities – one who speaks the word, one about whom words are spoken and the words themselves. All action requires three entities – actor, part being acted and characteristics of the action itself. So we come to this idea that this entity is beyond thought, words and actions.

Now we find ourselves in a strange place. We looked at the universe of cause and effect and postulated an entity beyond cause and effect. In doing so we broke down cause and effect and hence the universe itself. We looked at individualities, and postulated that 'Individual' is a changeless entity. In doing so we broke down the sense of individuality itself. We broke down the very thing we started with. Then how is it that this changeless entity 'caused' this universe, these living beings, these thoughts, these words, these actions when it is itself changeless and without (beyond) thought word and action? How did this entity lead to Individuality when we just showed that it has no sense of 'I' even which is the basis of all individuality we experience?

The stranger answer to this question is that this

question cannot be asked logically. Why not? How did the non-dual become this universe of duality? How did this entity which cannot even say "I am" become this universe of I and you? How did this entity, beyond space, time and causation, become this reality which cannot be experienced without space, time and causation? How did this entity which is without and beyond words and thought, become all this which speaks and thinks? We went through all this exhilarating exercise of analysing our own existence just to come to the point where we could not have come from our own source?

Let us do a thought experiment. Suppose there is a wave which is created by water, but it doesnot know that for the time being, nor can it perceive water. This wave is conscious of itself as a wave only and also able to experience other waves. It is experiencing itself as movement, as a form, as small or big in relation to other waves. It projects a time when it came to being by seeing other baby waves come into being and presuming it also came to being in the past. And it knows it will cease to exist by seeing other old waves cease to exist. But it struggles to understand what is going on, because all these phenomena seem to be happening on their own. It postulates that there is an entity called water, seeing that it cannot come to being, do all that it is doing on its own and cease to exist on its own. It sees that it is a dependent entity, and assumes that there is something more fundamental to itself which is creating it, sustaining it and ultimately dissolving it. Now this wave desperately wants to know that which created it and is making it do all that it sees itself doing and will dissolve it eventually. So it tries to take away its focus from other waves and also from its own form and manner etc and concentrates only on what is causing it. It begins then to perceive water, the substance of which it is a part, as it were. But still, it only sees water engaged in creating, maintaining and dissolving all these waves but it still cannot know what water looks, feels and is like on its own, still, calm and not engaged in all this wavy activity. So it sets out to experience that by reaching a state where there is only calm water without waves in it. If that state comes about when there is calm water, then the wave can 'know' what water feels like. But wait! If the water became calm, there is no wave at all! So who is there who can tell what the experience feels like? Who is there who can even ask this question as to what the nature of water is? Can the wave logically ask this question "what is water?" when the only way to know is to bring about a state where there is no wave itself?

But still, only water exists in this scenario. From the 'beginning' to the 'end', only water existed. It made a wave, played with it and became calm. But the poor wave, finding itself existent but not able to see what caused it, had a hell of a time. It experienced age, smallness, bigness, good form, bad form, good movement, bad movement, being, non-being without knowing anything about what is going on. Then it saw something making it, keeping it and dissolving it and felt happy. But when it went to see what water actually is, it disappeared. From the viewpoint of the wave, all this activity is going on. But from the viewpoint of the water, what happened? First there was water, then there was water and at last there was water. All the activity never made any change to the substance of water itself!

This analogy gives us a semblance of an answer. We saw that in the postulation of this Absolute Reality, there was no concept called 'I' at all. All relative experience which we now have is based on an entity called I. It is the reason why we go through all this experience, and it is impossible to perceive anything at all without this idea of an individual subject called I. In relation to this alone, there is perception of objects and the process of perception. So this I

never knows anything other than what is known through the I. It is the fundamental entity according to itself. Nothing exists other than in relation to it. When it seeks Reality also, it initially experiences that Reality in relation to itself. But when it wants to know the Truth, it will ultimately disappear because Truth is Non-dual. And in Truth, there is no I. No differentiation of subject, object and relation between the two in that Ultimate state, and so who is there that can ask this question - how did the Non-dual become the dual? So this question cannot be asked logically. Because the answer lies beyond the existence of the I which is asking this question. And the I disappears when it reaches the state which is the answer.

So the best explanation we can come up with is that this universe is a delusively manifested perception of the Ultimate Reality (*Vivarta vada*). The Ultimate Reality is not actually modified but only appears to be so in relation to the 'I' through which it is perceived. And the 'I' itself is a part of that manifestation. What can be said is that every aspect of the nature of this universe of relative experience implies the existence of the Absolute Truth. The finite implies the Infinite. Cause and effect implies the Causeless Truth. The consciousness of individuality implies Non-dual Consciousness. The very perception of bondage, great or small, implies that Freedom is a more fundamental reality. The very perception of relative disturbance and relative non-disturbance implies a more fundamental reality of Peace. The very perception of time, implies a changeless Eternity. The very perception of relative sadness and relative pleasure implies that there is a more fundamental state of Undivided Bliss. And the very 'fact' of death implies a more fundamental reality of Immortality. And so on. Every experience, good or bad is a modified perception of this Ultimate Reality based on the nature of the I which is experiencing it. We say 'good' when the perception is closer to and in tune with the Ultimate Reality and we say 'bad' when the perception is relative to an attitude which is against the nature of this fundamental Reality. We may have a purer and a purer experience of this Absolute Truth if the I relative to which we are perceiving it also becomes purer and purer.

This is crudely, the idea of Substance and matrix (*maya*). It is like an ice world – with ice earth, ice houses and ice animals and ice people inside an Infinite ocean of water. Water is the substance and ice is the modification. From the viewpoint of the modification, multitude exists, phenomena exist, time, space and causation exist. The ice world exists. But as soon as the modification resolves into Reality, the ice melts into water, Reality alone exists, Substance alone exists, which is beyond all description as we have seen before. Therefore the best that can be done through the medium of words and thought, is to imply Its Existence. And that Existence should be implied by all the phenomena of relative experience.

The one clinching point of this whole exercise is that experience of the one and only Reality is different relative to the nature and characteristics of the modification (I) through which the Reality is perceived. If there is identification with a modification, Reality experienced is relative. The same Reality is experienced in different ways based on the nature of the prism through which it is approached. This is called *maya*. It is an assumed identity, with self-defined characteristics of individuality which colours the perception of the same Reality through different viewpoints, and makes the Reality appear with the characteristics relative to itself.

Ultimately, the recognition must come that Truth is the basis of and interpenetrates all relative experience. While nothing can be said of the aspect of Truth which is beyond attributes as

discussed earlier, all experience otherwise is an experience of the same Truth, through different attitudes at different stages of experience. Seen through the prism of the ego, the same Truth appears to be with attributes. In analogy, if the *nirguna (*without *guna* or attributes*) Brahman* is an infinite ocean without a wave, the *saguna (*with *guna* or attributes*) Brahman* is the same ocean playing the game of creating, sustaining and dissolving the waves of this universe. The Absolute Truth has two aspects, *Nirguna Shiva, Saguna Shakti*.

**Shakti - Mother of the Universe :**

The Absolute Truth is unknown and unknowable. It alone exists. Suppose however, that this Reality never created this universe we find ourselves in. Truth is there. There is no one to know about it, no one that exists apart from it, no phenomenon that implies its existence, no characteristic of its nature that is expressed. In such an impossible hypothesis, one cannot even ask the question, does such an entity exist? Because no one exists to ask that question. There is no such thing as a question. A Basis with no association, an Essence with no expression is beyond the concept of meaning. But now in contrast, allow another equally impossible universe of multitude of expressions as we experience. But without an unchanging Basis of Infinite Consciousness for its existence, to give it its meaning. An infinite series of finite unconscious eternally changing entities This is equally meaningless.

So we see that an unknown and unknowable, expressionless Essence is without meaning. So is endless purposeless expression without a Truthful essence for its basis. What these two meaningless concoctions – essence and expression which are separate from each other are missing is 'Someone. This Some-one has Infinite Consciousness as the basis and is perceived to be engaged in activity (and therefore recognised as 'someone' (a personal being) rather than an abstract impersonal entity) – the most fundamental of which is creation, sustenance, and dissolution of the universe. This Someone will literally bridge the Infinite with the finite and will literally be the basis of all the fun that comes with the play of this universe, play the game of creating this madhouse of space, time and causation, this circus where individual souls come to tumble, this theatre where depressing acts of bondages and the ecstatic acts of freedom play out.

This Someone is Reality itself, in its dynamic aspect of creating, sustaining and dissolving the universe and therefore, can be described as the Mother of the universe.

We considered that it is illogical to ask the question *how did the Infinite become finite* or the non-dual differentiated into duality. However, one cannot doubt that what is perceived here has its basis in Reality. It is impossible to limit expressions of Infinity, and therefore impossible to state with certainty that such and such an experience is the highest perception of Infinity inside the realm of relative experience. Hence spiritual experience and progression is by nature limitless. We find even a personality like Sri Ramakrishna, the King of devotees, saying "As long as I live, so long do I learn" despite having easy access to the highest experience of *Nirvikalpa samadhi* in the palm of his hand.

Truth is the source of us all. And hence can be personalised as a parent. The impersonal aspect, the Infinite ocean without a wave, is more easily conceived as Father or *Shiva*. And the personal aspect, the same Infinite ocean with the waves of this universe is more easily conceived as Mother, *Kali* (*Shakti*).

Those aspects of Reality which are the most essential manifestations of Truth, which are the most fundamental aspects of perception, the ceasing of which leads to the dissolution of relative experience is the highest we can know

about the Absolute Truth in the relative realm. All such experiences of the Absolute Truth, while the ego is still present, are experiences of the Mother of the universe. *Nirvikalpa samadhi,* where the ego is said to be absent, is an experience of the Father, *Shiva.*

In the initial analysis we said that the universe characterised by the multitude of entities, phenomena all resolve into Non-duality. Therefore as one goes toward Truth, resolution of the multitude of differentiated existence which we perceive normally should occur toward that tending to Non duality.

Personally, every conscious experience has three aspects to it. What is experienced? What is the awareness that comes with this experience? What is the feeling that comes with this experience?

We find innumerable types of material things in the physical universe. But we now understand that all the different types of matter we perceive can be resolved into molecules and atoms. We further know that this level is again further resolved into subatomic particles. Though we may not have reached the culmination of knowledge in relation to subatomic particles, we have a general understanding that all matter can be eventually resolved into energy. From this example, we get an illustration of the resolution of a differentiated state to a more undifferentiated state. While modern science stops at matter, force and energy, the ideas in the *Sanatana* tradition enumerate many more layers to Reality before knocking at the doorstep of the Absolute Truth. But for now, if all differentiation in existence were to be resolved into the most fundamental indivisible aspect of Reality, but still be perceived from the viewpoint of a ripe or a mature ego (one that reflects Reality as it is, as much as possible), that existence would be called as *Sat* (undifferentiated existence).

Our awareness in routine experience of reality, is conditioned in many ways and hence multifarious. We are aware of many different types of sensations, thoughts, perceptions, and ideas. However, each experience of awareness is conditioned by the perspective of the perceiver, the object of perception and the instrument of perception. If one were to resolve all these conditions to a basal level and make perception as unconditioned as possible, then the Ultimate reality as perceived through that would be called *Chit* (unconditioned awareness).

All experiences in the relative realm, are associated with a characterisation of how that experience 'felt' Conditions again influence how an experience feels. In general, like and dislike of the individual as well as how good or bad any particular experience is a reflection of Reality, is what might decide how an experience feels. Again, if these conditions were to be resolved, and a simple, pure feeling of Reality is obtained through the ripe ego, then that feeling is described as *Ananda* (Bliss).

The 'I, reflecting Reality, which is of the nature of *Sat-Chit-Ananda*, assumes, as its primary attributes, the same characteristics. That is, I exist, I am aware, I feel. This *Sat-Chit-Ananda* is the highest experience of the ego in the relative realm in a personal sense of the term. It may be experienced in a formless manner with attributes by an impersonal attitude and in a manner with form through a personal attitude. And many more besides, as Sri Ramakrishna tells us. A study of the experiences of saints, prophets and incarnations tell us about the feeling of a Blissful Light of Unconditioned Awareness. The experience of the Light is mentioned in all the religions.

This is from the individual viewpoint. In the universal viewpoint, the most basic function of the universe is its own creation, sustenance, and dissolution. The most fundamental essence of the manifested universe which performs these functions is Power or *'Shakti.*

Nothing is more fundamental to this existence than the idea that the Ultimate reality is changeless whereas the relative reality is characterised by change. All change occurs in time. Therefore the Ultimate Reality as it manifests to us, nothing is more fundamental in that manifestation than the control of time. That is *Kali*. And it is the dissolution of time that brings the experience of Truth. Being the controller of time, She alone paves the way for the finite to melt away in the Infinite.

**Brahma — Shakti Abheda :**

In the Advaitic understanding of reality, the aspect of the Absolute Truth which is beyond attributes is given supreme importance. From that standpoint, all manifestation, including creation, sustenance, and dissolution, being changing phenomena, would become phenomena of maya and unrelated to the Truth.

But, in as much as the *nirguna*aspect of Truth is Absolute, that is, its existence doesnot depend on the existence of any other, the *Shakti* aspect of the same Truth is also Absolute as it is the ever present basis of all manifestation and therefore unchanging. It is Uncaused, Indivisible, beyond space and the controller of Time.

It is what creates the ego as waves springing out of water. It is the Reality from which all beings come, all beings live in and all beings go back to. The controller of the three gunas of nature. The waveless Infinite, beyond attributes and the dynamic aspect of Reality, perceived as creating, sustaining and dissolving are two aspects of the same Ultimate Truth (calm water versus same water in waves) as per Sri Ramakrishna.

**The Real Self :**

This Absolute Truth, in both its aspects, is the Ultimate Reality of all existence and is the same as the Self. Since it is non dual and the source of all conscious beings, the same Ultimate Reality is the inmost reality of all beings as well, the Real Self, along with being the source of all of so-called inanimate existence. Since the most basic conscious experience of individuality implies its existence, it is also the ultimate or the highest Consciousness. Since it is the ultimate Truth, the source of all existence, by knowing it, all that exists becomes known. And so, the real quest of knowledge is a knowledge of the Self. It is the Real Individuality of all individuals. It is the One without a second. It is all that exists and it has become all.

In the relative realm, implying that Reality is perceived through an ego, there is the ever-present duality of ego and the Reality as perceived by it. In this state there is always a difference between the ego and Reality. In this realm, the highest Reality or *Shakti*, being the source, sustainer, and dissolver of all egos – is eternally and infinitely greater than all egos. However, in the egoless state of *Nirvikalpa samadhi*, only non-duality may be implied.

It is the Self of all, the Immortal which disallows us to believe that death of the body is the end of existence. It is the reason why though no human experience has ever gone against the inevitability of bodily death, we still do not become fatalists. It is the reason why it is impossible for us to conceive of our own non-being. In ignorance, there is fear of death because non-being is completely alien to our own real nature and the thought of it makes us uncomfortable.

It is the Self of all, the Infinite, the Unbound which gives human beings an indomitable sense of freedom against all the evidence of a deterministic universe. It is the reason why human beings can never accept bondage as normal or unsurmountable. It is the reason why it feels better to die beating against and breaking the walls of a cage than to resign oneself to submission. It is the reason why even when falsely identified with a limited skin cage of flesh and bones or with flimsy frameworks of

limiting thoughts, the human spirit still strives to overcome all odds.

It is the Self of all, the non-dual basis of all existence which forms the basis of our feeling of one-ness with another in any form and manner of love, with our feeling of one-ness with all likable experiences, with the feeling of universal one-ness with all in unselfish Love, nay with the feeling of One-ness with all of existence. One-ness or union is the fulfilment of love.

All happiness is derived from the feeling of love and like. I identify with the body; hence I like and find pleasure with experiences that nourish and survive it. I identify with an idea; hence I like and find pleasure with intellectual works that agree with my ideology. I identify with qualities; hence I am happy with anyone who expresses those qualities. I seek a desire; hence when I am united with a fulfilment of that desire, I experience one-ness with my desired state and therefore happiness. All experiences which bring happiness, psychologically have a basis of the feeling we call like and love. When we experience one-ness with that which we like and love we feel happy. If such is true of limited experiences of one-ness, what would the experience of the non-duality of all existence feel like? Unlimited Bliss. It is the Self of all, the Non dual which is Bliss. And is reflected in all other limited experiences of one-ness as happiness or pleasure.

It is the Self of all, Consciousness itself, being all of existence and having become all of existence is aware of all of existence and hence the source of all knowledge and is Omniscient, the unconditioned Awareness.

It is the Self of all, being One with all as their inmost reality, which therefore is the source of all harmony.

It is the Self of all, being the all in all, which is Peace itself. As there is no entity other than this Ultimate reality, how can there be discord?

It is the Self of all, which is the source of all morality. As the same entity is the Self of all living beings, nay the entire existence, we who in our present state feel separate from others, must treat others as we would treat ourselves. This golden rule "treat others as you would have them treat you", is the source of all moral code. It is literally true, because 'my' real Self is 'your' real Self as also the Self of everyone else. Therefore, what I am doing to you, I am doing to me.

It is the Self of all, being the One without a second, which is purity itself, as there is no other entity that exists which can bring impurity to it.

It is the Self of all, fearlessness itself; being all that exists, who else is there that it can be afraid of?

It is the Self of all, the Ultimate reality from which the whole existence has sprung, which makes it also the source of all possibilities, and therefore the Omnipotent.

It is the Self of all, that which has become all, and therefore Omnipresent.

It is this which is called as God.

When we experience it as I and You, we exist in relation to it. When there is no I, then what Is, Is.

**Layers of Reality :**

From the viewpoint of the ego, the Absolute Truth is characterised by the complete absence of the ego. It is indescribable, even theoretically because it is beyond the three-fold differentiation of subject, object and the process of interaction between the two. It can be implied however, by the nature of the universe and individuality. In contrast, existence in the relative reality is not possible without having an ego. The ego is of the nature of an assumed identity but the assumption cannot be made without reflecting some aspect of reality onto itself. Relative to the nature of each assumption of the ego, Reality is

perceived by it in a different way. The Ultimate Truth is the repository of all possibilities. Each type of ego accesses the expression of different aspects of Reality based on its nature. The ego does not have any existence of its own. If there is no identification with a reflected aspect of reality, it ceases to exist immediately. This brings us to a dichotomy of existence which always characterises relative reality – ego and Reality as it appears to that ego. These two aspects must always be present when considering any experience inside the relative realm. Therefore, when analysing experiences, especially spiritual, the context provided by the attitude of the worshipper should not be missed. It is more a description of phenomenology – it is difficult to claim that 'this' is what it 'is' categorically. But this was perceived in this attitude through this type of ego is perhaps a better description.

Let us now clarify the last statement through an illustration from the Upanishad. (Taittariya Upanishad, Part III, chapter 1). There was a boy named Bhrugu. His father was Varuna. He went to his father and requested him to teach him about *Brahman* (the Ultimate Truth). His father said to him, "I will give you a characteristic of *Brahman*. Meditate on that characteristic definition and realise what is the entity which fits into that definition. Realise this entity through *tapasya*. The characteristic is that from which all beings come, that in which all beings live and that to which all beings go back – that is *Brahman*. Realise it through *tapasya*."

So the boy began his introspection. One must realise that the one who is meditating is also a being who has come from, lives in and goes back to that Brahman which is being meditated upon. The introspection is what am I coming from, what am I living in and into what am I going back to?

It is literally a process of 'self' realisation. Now this boy comes to his first conclusion. He experiences himself as a body made of matter in his usual state. He thinks the physical universe is *Brahman*. The body comes from this material universe, lives in it and when it dies goes back to the matter where it came from. So it should be that the material universe is *Brahman*. But somehow he is not satisfied with this realization. He goes back to his father, who repeats the same instruction and sends him back to his meditation.

Going a step further, he realises that all the matter in this universe can be resolved into force (*prana*). With this realization we must understand that he is viewing himself also as a being made of force. Not satisfied, he goes back, and is again sent back.

He then realises *Brahman* as mind (*mana*). (this is where modern understanding ends. The Bharatiya understanding is that, mind is an aspect of reality more fundamental than the forces of physical nature. And just as individual mind controls the forces and matter of the physical body, the layer of reality called mind controls the layers of reality more gross to itself, that is force and matter in the universe as well). He has now realised himself as mind. Better, but still not satisfied, he goes back to his father, and is again sent back.

The next layer that opens up to him is that *Brahman* is *vijnana*. *Vijnana*is variously translated as intelligence or knowledge. It is said to be the *buddhi* – intellect or the determinative faculty which gives the sanction to the mind to work through the material body. All actions performed by individuals who have not attained to the Truth are preceded by motive through desire, and it is the ego of individuality which creates desire and works through will which in turn creates impressions called the mind. It is the sense of individuality from which all the impressions called as mind are made. Again better but not satisfied, he goes back, and is again sent back.

At last, he realises Bliss (*Ananda*) as *Brahman*. With this realisation, he sees himself also in relation to Reality as Bliss. As we saw earlier, Bliss is an experience of non-duality, or one-ness of all existence. Now, he is in a state of 'I', pure, where he can perceive Reality as non-dual Bliss (an experience of the *vidya-aham* or the ripe ego). Now he is seeing the one-ness of the whole of existence and himself as a being who comes from this *Sat-chit-ananda*, lives in it and goes back to it. (*Ananda* cannot be separated from *Sat* and *Chit*). At this stage he is satisfied and he no longer needs to go back to his father, content as he is in his realisation. This is the *Ananda-maya kosha*. It is still a *kosha* or sheath and not the Ultimate Reality itself. When this ego also vanishes then, the non-dual Absolute Truth is implied.

So in this example, we get a sense of what the layers of Reality mean. At each step, it is the same Reality which is perceived, but through differing conditions. If one identifies with the body, one experiences the same Reality as the physical universe. If one identifies with the mind, the same Reality is experienced as (cosmic) mind. Ultimately, as the ego is purified, only *Sat-Chit-Ananda* is experienced.

"M : "Why should your visions (of God) not be real? If they are unreal, then the world is still more unreal; for there is only one mind that is the instrument of perception. Your pure mind sees those visions, and our ordinary minds see worldly objects."

MASTER : "I see that you have grasped the idea of unreality.[1]

**Philosophy to Neurology :**

Now with this background, a theorisation of the way in which higher aspects of reality relate to the human biological system can be attempted.

Firstly, we need to understand that it is the Ultimate Reality, which is Infinite consciousness, which through the reflections of the ripe ego, then individuality, then mind, then force enters and functions through the physical human being. Therefore, as far as perception is concerned, from the physical senses to the experience of *Brahman*, all experiences are available within the depth of the human being. Again, these layers of the human being are not conscious by themselves, they reflect Infinite consciousness, which in turn leads to the experience of self-awareness, of the three states of wakefulness, dream and sleep, of life and death. The perception of a higher aspect of reality is never lost under any circumstance in human beings, because, unless that Consciousness is reflected in these layers of the human being, a 'person' cannot exist. By the same token, death occurs when the layers of the individual soul – the *linga* and *karanasharira* (*linga sharira* is subtle body representing the layers of mind and *vijnana*, *karanasharira* is the causal body representing the *ananda-maya kosha*), with the Ultimate Reality as their basis, separate from the gross body of force and matter.

Swami Vivekananda explains the process of perception as per the Sankhya philosophy: "I will tell you a little of the Sânkhya philosophy, upon which the whole of Raja-Yoga is based. According to the Sankhya philosophy, the genesis of perception is as follows: the affections of external objects are carried by the outer instruments toÊtheir respective brain centres or organs, the organs carry the affections to the mind, the mind to the determinative faculty, from this the Purusha (the soul) receives them, when perception results. Next he gives the order back, as it were, to the motor centres to do the needful. With the exception of the Purusha all of these are material, but the mind is much finer matter than the external instruments. That material of which the mind is composed goes also to form the subtle matter called the Tanmâtras. These

become gross and make the external matter. That is the psychology of the Sankhya. So that between the intellect and the grosser matter outside there is only a difference in degree. The Purusha is the only thing which is immaterial. The mind is an instrument, as it were, in the hands of the soul, through which the soul catches external objects. The mind is constantly changing and vacillating, and can, when perfected, either attach itself to several organs, to one, or to none. For instance, if I hear the clock with great attention, I will not, perhaps, see anything although my eyes may be open, showing that the mind was not attached to the seeing organ, while it was to the hearing organ. But the perfected mind can be attached to all the organs simultaneously. It has the reflexive power of looking back into its own depths. This reflexive power is what the Yogi wants to attain; by concentrating the powers of the mind, and turning them inward, he seeks to know what is happening inside."[2]

As a corollary, we must understand a peculiar situation created by modernity in the form of artificial intelligence - imitations of human behaviour with embedded algorithms and vast data programmed as much as possible to imitate human behaviour to the extent that it may be difficult to predict if one is dealing with an actual human being or an artificial imitation of one. From the background study and practice of the scriptures, it is clear that the human being is not merely flesh. There are more layers to this existence including the mind, individuality and ultimately the innermost reality beyond the ego – Truth. Thence, it is a straightforward conclusion that any amount of accuracy in the imitation which contains only physical components, how much ever it mimics the behaviour of a human is NOT the same as an actual human connected through the depth of ones being to the Ultimate reality, because all the other layers of reality are not present in that behavioural imitation. Nor can this imitation be conscious or experience emotions or have an ethical sense which comes innately from the non-dual nature of Ultimate Reality.

As we considered previously, all relative perception of reality comes through the prism of the ego.

A pure attitude, relating to nothing except God and wanting nothing but God, will perceive what it wants – God. Identification with material – body and mind limits the understanding of reality and clouds the perception. Hence it is the clouding or limiting of perception, through false identification with matter that prevent the Reality to be perceived as it is. It is very much like wavy waters preventing the perception of the bottom of the lake. It is to be noted that a limited perception of what is already True through the framework of conditions leads to the outwardliness of the focus of conscious perception. It can perhaps be postulated in this context that *Chit* is unconditioned awareness, when it is limited by conditions, it becomes thought. Bliss (*Ananda*) which is unconditional, when conditioned, is perceived as emotion.

We saw that the first manifestation of the Ultimate Reality is as the Power of creation, sustenance, and dissolution of the universe. If this power is the final seemingly limitless expression of Infinity in the relative reality, this manifestation becomes limited by the lesser and lesser possibilities of the layers of reality from the ego to mind to force to matter. One must imagine how it would feel for the power of Infinite consciousness to be limited by the possibilities of these layers. The identification with matter is the most contracted and limited way in which one may experience Consciousness. As it were, the unlimitedness of the power of the Ultimate Reality becomes contracted in its perception and expression of possibilities, thereby resembling a spring which has become coiled (i.e., contracted in the

expression of its possibilities), called the *Kundalini*. This unnatural coiled up state of limited awareness is extremely uncomfortable to the soul, which knows the unlimitedness of the depths of its own being. As soon as the false identification is let go off, as with the example of Bhrugu seen above, the experience of matter gives way to the higher experience of oneself as force, then mind, then individuality and finally the bliss of Infinite existence.

The process through which this occurs is described by Sri Ramakrishna as follows.

MASTER : According to the yogis there are three nerves in the spinal column: Ida, Pingala, and Sushumna. Along the Sushumna are six lotuses, or centres, the lowest being known as the Muladhara. Then come successively Svadhisthana, Manipura, Anahata, Visuddha, and Ajna. These are the six centres. The Kundalini, when awakened, passes through the lower centres and comes to the Anahata, which is at the heart. It stays there. At that time the mind of the aspirant is withdrawn from the three lower centres. He feels the awakening of Divine Consciousness and sees Light. In mute wonder he sees that radiance and cries out: 'What is this? What is this?' "After passing through the six centres, the Kundalini reaches the thousand petalled lotus known as the Sahasrara, and the aspirant goes into samadhi.

"According to the Vedas these centres are called 'bhumi', 'planes'. There are seven such planes. The centre at the heart corresponds to the fourth plane of the Vedas. According to the Tantra there is in this centre a lotus called Anahata, with twelve petals.

"The centre known as Visuddha is the fifth plane. This centre is at the throat and has a lotus with sixteen petals. When the Kundalini reaches this plane, the devotee longs to talk and hear only about God. Conversation on worldly subjects, on 'lust and gold', causes him great pain. He leaves a place where people talk of these matters.

"Then comes the sixth plane, corresponding to the centre known as Ajna. This centre is located between the eyebrows and it has a lotus with two petals. When the Kundalini reaches it, the aspirant sees the form of God. But still there remains a slight barrier between the devotee and God. It is like a light inside a lantern. You may think you have touched the light, but in reality you cannot because of the barrier of glass.

"And last of all is the seventh plane, which, according to Tantra, is the centre of the thousand-petalled lotus. When the Kundalini arrives there, the aspirant goes into samadhi. In that lotus dwells Satchidananda Siva, the Absolute. There Kundalini, the awakened Power, unites with Siva. This is known as the union of Siva and Sakti. The state of samadhi "When the Kundalini rises to the Sahasrara and the mind goes into samadhi, the aspirant loses all consciousness of the outer world.[3]

Let us try and correlate these descriptions to the various aspects of the structure and function of the nervous system.

**Theory 1 :** The number of petals in the different lotuses along the *Sushumna* in each anatomic region corresponds to the number of functional neurologic units at that particular anatomic level. This corresponds to the number of spinal nerves in the sacral, lumbar and cervical regions, half the number of spinal nerves in the thoracic region and the number of cerebral hemispheres in the brain.

The nervous system is divided into the central and peripheral nervous system. The brain and the spinal cord are the two parts of the Central Nervous System (CNS). (though they are conventionally named as separate, brain and spinal cord are anatomically continuous). The peripheral nervous system consists of nerves and ganglia (cluster of nerve bodies outside the CNS).

It has two divisions – afferent and efferent. The afferent nerve fibres transmit nerve impulses from the peripheral organs to the spinal cord and brain. The efferent nerve fibres carry information from the central nervous system to the peripheral organs to carry out an effect.

The spinal cord divides into 31 segments: these are anatomically divided as - cervical (neck region) 8, thoracic (chest region) 12, and the lumbar 5, sacral 5, (both lumbar and sacral regions form the lower back region, lumbar being above the sacral) and coccygeal 1 (correspondingly there are 31 pairs of spinal nerves: 8 cervical, 12 thoracic, 5 lumbar, 5 sacral, 1 coccygeal).

Though there are several named parts of the nervous system, anatomically the parts are continuous with one another and it functions as one whole with a very high level of integrity. It is the instrument through which, in the philosophical sense of the term, the mind and then the soul connects to and experiences the material.

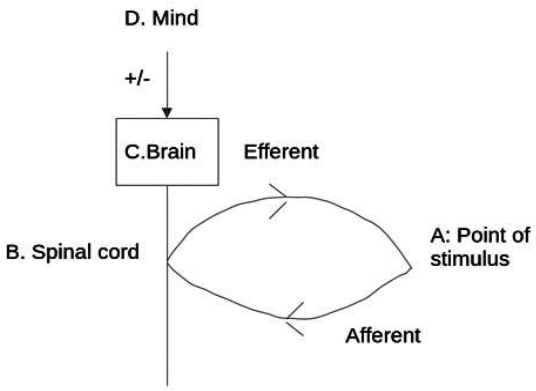
From below to above, the coccyx is the final portion of the vertebral column, and corresponds to the tail in apes. In the human embryo temporarily there is a tail, with coccygeal vertebrae, associated nerves and the terminal portion of the spinal cord which gets resorbed eventually, what remains, is considered vestigial[4] and hence is not of much consequence in our current consideration. As shown in the table, in the lumbar and sacral segments of the spinal cord, there are a total of 10 segments and as there are a pair of nerves in each segment, one from each side, 20 nerves that emerge from this region supplying both lower limbs and lower portion of the back and abdomen. The lotuses of the *Muladhara, Swadhisthana and Manipura* – representing the anal, genital and naval regions total up to 20 petals as well. In the cervical region also, which supplies the upper limbs, neck, chest and axilla (arm pit) the number of nerves is 16 (8 pairs, one from each side) and the number of petals in the lotus of *Vishuddha* (throat centre) is 16.

In the thoracic region, however, it is seen that the number of petals in the *Anahata* lotus (heart centre) is exactly half the number of nerves emerging or the same as the number of segments. Now it may be argued that if the premise is correct, then for the nerves supplying the lower and upper limbs, there is a functional differentiation of right and left for the nerves as well as the limbs. Hence the right and left spinal nerves supplying the limbs should be counted separately. Whereas in the thoracic (chest) region, left and right side differentiation in the chest doesnot have much functional significance. This is to some extent corroborated by studies looking at stimulation of somatosensory cortex (part of the brain which receives and processes the sensory input from all parts of the body) responsiveness by functional Magnetic Resonance Imaging when limbs are stimulated versus trunk.[5] Stimulation of the right and left limbs induces responsiveness in the opposite (left and right respectively) somatosensory cortex implying that left and right sides are distinguished, whereas stimulation of the trunk on either side leads to stimulation of the both sides of the relevant areas of the brain. This observation may give credence to the functional non differentiation of right and left thoracic areas in the way the brain processes information from this region and hence the pair of spinal nerves emerging in this region may be considered as one functional neurologic unit which explains the discrepancy in the nerve and petal number by exactly half.

All the information obtained from the various parts of the body are ultimately processed in the two cerebral hemispheres. The significant lateralisation of the function between the right and left hemispheres again makes for their consideration as two distinct entities. Hence two petals for two hemispheres (*Ajna* lotus).

| Lotus | Location | Number of petals | Neuroanatomic Correlate |
|---|---|---|---|
| *Muladhara* | Organ of evacuation | 4 | There are 5 pairs of spinal nerves that emerge from lumbar and sacral spinal cord. (L1-5, S1-5) – making a total of 20 nerves. The total number of petals in the first three lotuses also number 20. |
| *Svadhisthana* | Organ of procreation | 6 | |
| *Manipura* | Navel | 10 | |
| *Anahata* | Chest | 12 | T1-12 : 12 **pairs** of nerves emerge from the thoracic spinal cord. However the number of petals in the Anahata chakra is also 12 i.e., exactly half. |
| *Vishuddha* | Throat | 16 | C1-8 : 8 pairs, that is 16 nerves emerge in the region of the neck, i.e., the cervical spinal cord. Number of petals is also 16. |
| *Ajna* | Between the eyebrows | 2 | The location of this centre corresponds to the brain. As we all know, the numerous pathways of brain circuitry can be eventually resolved into two functional components i.e., the two cerebral hemispheres, corresponding to two petals in this lotus. |
| *Sahasrara* | Crown of the head | 1000 | This is beyond material, the experience of unconditioned awareness no longer limited to experience through a finite number of pathways of knowledge. Perhaps, hence the representation as a fully bloomed lotus of a thousand (innumerable) petals. |

**Theory 2 :** A nerve can be represented as a petal symbolically as it functions in the manner of a loop of information processing (a petal looks like a loop as well) i.e., a nerve may be represented as a reflex arc of afferent pathway conveying information from the external environment and the body to the central nervous system and efferent pathway carrying the response of the central nervous system to the effector tissues. This reflex arc is symbolically represented as a petal.



Assume a stimulus from the environment or the body itself which has given its information to any one of the nerves eventually through the spinal cord to the brain. This is the afferent stimulus. In the materialistic world view, the physical universe being the all in all of existence, it should be impossible for the human awareness to wilfully detach from a sensation with the consequence of choosing not to perceive that sensation despite an intact nervous system and the presence of a stimulus. However, in the religious experience, this process of being able to withdraw the focus of consciousness from the external objects of the senses, then from the body itself, and eventually from the impressions we call as the mind and turn it toward its own source, i.e., the Infinite Consciousness is fundamental.

“When he looked at Sri Ramakrishna he was struck with wonder; for the Master stood motionless, with eyes transfixed. He seemed not even to breathe. A devotee told M. that the Master was in samadhi. M. had never before seen or heard of such a thing. Silent with wonder, he thought: "Is it possible for a man to be so oblivious of the outer world in the consciousness of God?”[6]

In the pages of the gospel, we find Sri Ramakrishna going into this state of samadhi time and again, several times in a day. “In bhava samadhi you will see the form of God, and in nirvikalpa samadhi you will realize Brahman, the Absolute Existence-Knowledge-Bliss. In nirvikalpa samadhi ego, name, and form do not exist.”[7].

At a lower level, this phenomenon would manifest as being able to choose to see or unsee with the eyes being open, choose to hear or not hear a sound, choose to or not to perceive pleasure or pain from any part of the body. It is like voluntarily being able to apply anaesthesia to the body, part or whole. Indeed, we find recorded similar experiences in the lives of many saints[8].

In more common experience, we are all aware that we filter and choose which of the jumble of sensory stimuli that we can focus on consciously. Like for example, in a market, though various sounds are impinging on the ears at the same time, we donot seem to have trouble focusing on the conversation at hand. It is also a common experience, people who are lost in thought or emotion, do not seem to be able to hear sounds in their vicinity though there is nothing wrong with their ears, or the nerves or the brain, and so on. Consider if it would be possible to extend this phenomenon, to a scenario where there is such fullness of concentration on a purely mental object having no connection to any object in the external world, with the result that the mind is absorbed in it leading to loss of awareness of the body altogether.

"A person can achieve such single-mindedness in meditation that he will see nothing, hear nothing. He will not be conscious even of touch. A snake may crawl over his body, but he will not know it. Neither of them will be aware of the other. "In deep meditation the sense-organs stop functioning; the mind does not look outward. It is like closing the gate of the outer court in a house. There are five objects of the senses: form, taste, smell, touch, and sound. They are all left outside[9].”

With this background let us look at the different possibilities of sensory experience or its absence in relation to the petal analogy. In usual experience, a sensory stimulus stimulates a receptor, then the nerve impulse generated travels to the spinal cord and thence to the brain where the sense is perceived, if the mind engages with this stimulus through an attachment and a reaction, then one may represent that state as the attachment between the sensory stimulus and the mind. In the figure, this will be represented as point D (mind) coming in contact with point B (spinal cord) through point C (brain) being

engaged by point A (sensory stimulus). In the analogy, if point A touches point B, then the petal should come into contact with the stem, as it were and look closed. Imagine the loop of the reflex arc coming backwards and touching the spinal cord i.e., A connecting to B.

If the attention of point D (mind) is taken away from C and hence B and A, then the stimulus would travel physically through the nerves but not be perceived by the person. Here all components of the arc are intact as it were without any point coming into contact with any other point. The petal would look open.

Finally, suppose the mind is detached from all the stimuli coming from a certain level in the spinal cord. Then one would be unconscious of the region of the body supplied by those nerve segments in the spinal cord. Consider this process of withdrawal of attachment going from the lowest portion of the spinal cord, segment by segment all the way to the brain, one then loses awareness of the body starting from the feet and moving upwards till all external awareness is withdrawn. During this process, as the focus of consciousness is withdrawn, taking the above analogy, the 'petals' at each level would 'open up'.

"During my sâdhanâ period I had all kinds of amazing visions. I distinctly perceived the communion of Âtman. A person exactly resembling me entered my body and began to commune with each one of the six lotuses. The petals of these lotuses had been closed; but as each of them experienced the communion, the drooping flower bloomed and turned itself upward. Thus blossomed forth the lotuses at the centres of Muladhara, Svadhisthana, Anâhata, Visuddha, Âjnâ, and Sahasrara. The drooping flowers turned upward. I perceived all these things directly[10]."

"You see," said he, "something goes up creeping from the feet to the head. Consciousness continues to exist as long as this power does not reach the head; but as soon as it reaches the head all consciousness is completely lost. There is no seeing or hearing any more, not to speak of speaking. Who can speak? The very idea of 'I' and 'you' vanishes[11]."

So it may be surmised, that nerve function, with consideration of mind being attached to and detached from its stimulus and sensory perception may be represented as closing and opening of a petal.

**Theory 3 :** The *Ida* and *Pingala* nerves of the yogis correspond to the afferent and efferent functions of the nervous system. This idea comes from Swami Vivekananda. He describes in his monumental book Raja Yoga - "We know there are two sorts of actions in these nerve currents, one afferent, the other efferent; one sensory and the other motor; one centripetal, and the other centrifugal. One carries the sensations to the brain, and the other from the brain to the outer body. The columns of sensory and motor fibres in the spinal cord are the *Ida* and *Pingala* of the Yogis. They are the main channels through which the afferent and efferent currents travel[12]."

**Theory 4** : Proposed framework to interpret the gradation of conscious experience represented by each of the lotuses along the *Sushumna.*

*Sat-Chit-Ananda* is the inmost Conscious Reality of human beings. This is reflected as the experience of individual consciousness. Each lotus and by corollary the corresponding neurologic segment of the brain or spinal cord represents a stage of experience of this reflected consciousness. The reflector in each stage, that is the part of the nervous system in which this experience is obtained is characterised by all the afferent and efferent stimuli/response which is obtained by each of these parts of the spinal cord and brain individually. The focus of consciousness may keep shifting between these different centres of perception which are different segments of the spinal cord and brain based on the will of the individual soul. The experience of the *Muladhara* lotus (mostly the sacral segment

of the spinal cord) represents the lowest level of human awareness, that of *Swadhisthana* (sacral and some segments of lumbar) represents a more expanded awareness and so on. Thus, the framework of thought, emotion and action gradually expands as the focus of consciousness goes upwards in the spinal cord toward the brain. Awareness in relation to the *Muladhara* lotus for example, is a mindset that is limited in its awareness, by the framework of sensory and motor experience obtained through those set of nerves and the thought and emotion it incites in the conscious being. As it moves upwards, the mind is expected to be detached from the lower set of nerves, the awareness expands to a better reflection of the Highest Conscious state, with the exclusion of the experiences of the lower state. Finally, while still remaining in the framework of thought and emotion, the experience of the *Ajna* lotus represents the highest level of human conscious experience.

"The seat of the mind is between the eyebrows; but its look is fixed on the navel and the organs of generation and evacuation, that is to say, on 'lust and gold'. But through spiritual discipline the same mind looks upward[13]."

"The Vedas speak of seven planes where the mind dwells. When the mind is immersed in worldliness it dwells in the three lower planes-at the naval, the organ of generation, and the organ of evacuation. In that state the mind loses all its higher visions-it broods only on 'lust and gold'[14]."

Relative influences on brain and behaviour :

It is common experience that average human and animal behaviour is highly influenced, directly or indirectly by the intent of physical survival and pleasure. In the philosophical perspective, this may be interpreted as a consequence of identification of 'self' with the physical body. As considered previously, the false superimposition of the characteristics of the Real Self upon the objects that the ego falsely identifies with may explain many human behaviours. At the same time, other powerful influences at the physical level would be the avoidance of pain and the seeking of what is comfortable and pleasurable.

The nerve impulses which provide sensory afferent information from different levels of the spinal cord may be divided into those obtained from somatic (includes all inputs from the 5 senses – skin, eyes, ears, nose and taste) and visceral sources (information relayed to the brain from the internal organs). While the somatic afferent input may be linked to the interaction of the body with the external environment, the visceral afferent inputs are concerned with the states of the internal organs of the body. These are often ignored and scarcely studied but are probably of primary importance to neurologic function. Dynamic and continuous afferent visceral inputs, in toto, perhaps drive the brain's representation of the body's internal state which in turn builds the experience and awareness of the physical organism. It follows that this aspect influences human behaviour and awareness in the physical sense at least equally if not more, compared to the inputs from the external environment and their processing in the brain[15]. Therefore, while attempting to characterise the framework of conscious awareness produced by the sensory information obtained from different segments of the spinal cord, the visceral inputs from those regions are very important. It is to be noted that the lower three centres, representing the organs of evacuation, generation and digestion – their functions and the level of conscious awareness that they represent are similar between animals and humans. Only when the human being transcends, in thought, emotion and action these three functions, is the 'human' being worth the name according to religious understanding.

**Muladhara :**

Anatomically this lotus is 'present' at the level of the organ of evacuation. In neuroanatomy, this would correspond, as seen before to the lumbo-sacral nerves which obtain sensory information from and regulate the functions of the lower limbs and the anal region. Assume that the conscious awareness at this stage is limited to the sensory perception obtained by these nerves alone and no other perception is possible. This means that this particular 'person' operates at a level where - no information is obtained about the body or its environment except that which is conveyed by these nerves. What is the level of awareness obtained in a conscious organism which is limited to perceive only that information which is coming from these set of nerves? It may be represented by a mindset which only knows about its own sensations be it interpreted as pleasure or pain, has no awareness of other organisms and has very limited awareness of its environment.

This being says, my awareness is limited only to my own sensations. I know not of other beings like or unlike me. I sense very little of the environment I live in. Needless to say, this state of mind is characterised by and works in the framework of extreme selfishness, with no awareness of or consideration for other living beings and works only in relation to its own pleasure and pain irrespective of the consequences of its actions on others. Hence if someone behaves in this way, their level of conscious awareness is said to be functioning at the lowest level possible to human beings, and corresponds to the lowest portion of the nervous system.

**Swadhisthana :**

This lotus represents the nerves supplying the organ of generation (genitalia). Applying the same framework as before, the function of these nerves require interaction with the opposite sex of the same species. Compared to the previous centre, where the conscious awareness of the being was limited to pleasure and pain experiences of one's own body alone, this set of nerves and their function expands the framework to include other members of the opposite sex. In this sense, all the thought, emotion and activities of an organism which relate to reproduction and propagation of the species is represented by the function of this centre. This represents a slight expansion of the conscious awareness, from being limited to one's own body alone to include other members of the species, albeit related only through selfish attachments. Thus, an awareness or a mindset which is limited to one's own sensations, and connects and interacts to other members of the species through a physical relationship is said to function at the level of the two lower nervous centres.

**Manipura :**

This is the centre at the level of the navel. These nerves would obtain visceral sensory information from and regulate the functions of the gut or the gastrointestinal system. All the functions of the human organism which relate to the acquisition of food for survival will represent the function of this centre. This expands the conscious awareness some more, needing to interact with the environment for procuring food, feeding oneself and one's family, as also the need for collaborating with other members of the 'community' for a stable process of survival. In short, the spectrum of consciousness at this stage involves all the range of thought, emotion and activity needed for survival, reproduction and awareness of and reaction to one's own sensations.(the lower three centres)

If this interpretation is correct, then we see that the concept of neurologic organisation in this approach calls for a gradation of conscious awareness in relation to each anatomical portion

of the nervous system. It may be said that the body is evolved and anatomically organised in a way that incorporates stages of evolution and development of the human psyche in an anatomically meaningful manner.

Now let us take into consideration the concepts involved with the lotuses top down and their neurologic correlates.

**Ajna :**

The first consideration is that since the lotuses and their corresponding neurologic counterparts represent lower states of consciousness lower down, and higher states higher up, it stands that the 6th centre representing the two cerebral hemispheres of the brain, called as the *Ajna*, is associated with the highest state of consciousness while still retaining an ego. The 7th centre, *Sahasrara* or the thousand petalled lotus is beyond material and is the seat of *Shiva*, the Absolute Truth. This experience of *nirvikalpa samadhi* is characterised by the absence of the ego (Non-duality).

Hence, one should presume that the point of contact of *Sat-Chit-Ananda* to the individual soul should be in the brain. In the philosophical sense of the term, this is the first reflection of the Undivided Consciousness in the human being. The scripture affirms this as we find in the *Aitareya* upanishad that the supreme being enters the human body through the crown of the head.

स ईक्षत कथं न्विदं मदृते स्यादिति स ईक्षत कतरेण प्रपद्या इति । स ईक्षत यदि वाचाऽभिव्याहृतं यदि प्राणेनाभिप्राणितं यदि चक्षुषा दृष्टं यदि श्रोत्रेण श्रुतं यदि त्वचा स्पृष्टं यदि मनसा ध्यातं यद्यपानेनाभ्यपानितं यदि शिश्नेन विसृष्टमथ कोऽहमिति ॥११॥

स एतमेव सीमानं विदार्यैतया द्वारा प्रापद्यत । सैषा विदृतिर्नाम द्वास्तदेतन्नान्दनम् । तस्य त्रय आवसथास्त्रयः स्वप्ना अयमावसथोऽयमावसथोऽयमावसथ इति ॥१२॥

He (the Creator) bethought Himself: "How could this (aggregate of body and organs) exist without Me?" Then He said to Himself : Which way shall I enter it? He said to Himself further: "If speech is uttered by the organ of speech, if smelling is done by the breath (prana), seeing by the eyes, hearing by the ears, touching by the skin, thinking by the mind etc, then who am I?

After thinking thus, Atman asked Himself how He should enter the body. This can be done either through the toes or through the crown of the head. Which of the ways should He choose? Atman said to Himself, that He would certainly not enter through the toes, which were the door of entrance of His servant the Prana, who obeyed His orders, but He would enter by the crown of the head. So, piercing the end, the Lord entered through that door. That door is known as the *vidriti*, the cleft. This is the place of bliss. Atman (thus embodied) has three abodes, three conditions of sleep. This is one abode, this is another, this is the third[16]."

Now, we all know that neurologically, the higher centres of the brain are the areas involved in the processing of thought and emotion. In the current consideration, if the focus of consciousness has reached the brain after detaching from all the lower centres, the thought (awareness) and emotion is free from all material considerations, meaning it is pure and has only one goal – perception of Truth. Hence anyone who has reached this stage of development, the focus is only toward the Truth and completely withdrawn from all else. In this model, this translates to the first reflection of Consciousness or the ego which is ripe – as we discussed before, is perceiving only its source, i.e., *Sat-Chit-Ananda* or the Infinite Consciousness. In this context the suggestion may be that the *Sat-Chit-Ananda,* which has entered into the human being through the crown of the head, that Undivided Consciousness is first reflected in the centre working at the level of the two cerebral

hemispheres (6th and 7th centre). As the ego is still present in this scenario, the experience is still not one of complete non duality as described by Sri Ramakrishna.

"Then comes the sixth plane, corresponding to the centre known as Ajna. This centre is located between the eyebrows (*same level as the two hemispheres of the brain*) and it has a lotus with two petals (*corresponding to the two cerebral hemispheres*). When the Kundalini reaches it, the aspirant sees the form of God. But still there remains a slight barrier between the devotee and God. It is like a light inside a lantern. You may think you have touched the light, but in reality you cannot because of the barrier of glass[3]." [italics not part of the original quote]

As perception is still through the prism of the ego, the Ultimate Reality may either appear as the *Jyothi* (Blissful Light) of the *Sat-Chit-Ananda* or the same as embodied in a form. (*Bhava Samadhi*). One may note that the centre controlling the breathing and the heart beat in the brain, is present in an area called the brainstem, which is below the cerebral hemispheres. Based on the assumption that the withdrawal of the mind from a certain part of the nervous system should lead to cessation of the functions of that part of the nervous system, while in the centre of *Ajna*, it should also be that the body should cease to breathe and not have a heartbeat in this state of samadhi (complete absorption). Indeed, that is how the experience is described.

"Sri Ramakrishna was standing still, surrounded by a few devotees, and Narendra was singing. M. had never heard anyone except the Master sing so sweetly. When he looked at Sri Ramakrishna he was struck with wonder; for the Master stood motionless, with eyes transfixed. He seemed not even to breathe. A devotee told M. that the Master was in samadhi. M. had never before seen or heard of such a thing. Silent with wonder, he thought :

"Is it possible for a man to be so oblivious of the outer world in the consciousness of God? How deep his faith and devotion must be to bring about such a state![17]"

"Sometimes again the body would become stiff with no sign of life. I (Sri Ramakrishna) used to meditate and people would say birds would sit on my head mistaking it for lifeless matter. I had no idea of the world and things of that sort[18]."

"Once during the Master's (Sri Ramakrishna's) samadhi a doctor put a stethoscope on His chest and could not find a heartbeat. On another occasion a doctor touched His, the Master's eyeball with his finger to see if His eyelid would blink, and he was convinced that there was no sign of life in His body[19]."

With the above considerations, it is easier for us to now look at the experiences connected with the remaining two centres – the heart (*Anahata*) and the throat (*Vishuddha*) centres.

**Anahata :**

The understanding from above considerations is that, the most fundamental state of consciousness of the human being is what is experienced in the *Ajna* centre as described above. If there is a deviation away from focus toward God, then the focus of the consciousness comes down to the lower centres. Greater the deviation, more limited the awareness and lower the neurologic centre in which the mind dwells. As we saw previously, the lowest three centres represent the activities of pleasure, reproduction and survival. As the mind detaches from the activities representing the lower centres and withdraws from them, the awareness that is felt moves closer to the awareness of the final state of consciousness. In this awareness, the limitations leading to the states of consciousness of the centres that have been detached from are

absent. For example, if the mind has to reach the *Anahata* or the heart centre, then that mindset should be free from all attachments to the sensations of the lower three centres. The awareness must be free from the thoughts and emotions which characterise them – meaning that such a person should be free from attachment to his/her own comfort or discomfort in the physical sense of the term, free from lust and free from selfish attachment toward activities asserting a physical identity. And tend more toward a state of awareness of oneself as an entity higher than the physical. We find that as beings move forward in their spiritual life, the level of austerity goes up as well naturally, not from a forced process, as they find spontaneous joy and content in a higher mode of being. Unselfish thoughts, emotions and actions, an intellect which dwells in the nature of higher truths, emotions which relate to God are characteristic.

This should not however, mean that if a person reaches this centre of consciousness, they will cease to procure their physical sustenance or desist entirely from making themselves comfortable or move away from discomfort, or even engage in family life. The specific manner in which these actions would be expressed or refrained from would be individualistic, depending on the specific attitude, intensity of focus toward the goal and the personally defined purpose of life and existence. People can move up and down the centres of consciousness as they choose, of course depending on the access and intent. One should also note, that it is entirely possible to be seen as engaged in physical activity, but nevertheless purely being an unaffected observer without the least attachment of the consciousness toward the activity. There are very many illustrations of this *asangatva* (non-attachment) among religious personalities even while being engaged in activities. A famous example would be found in the life of Sri Krishna, as a perfect illustration of complete non-attachment in the midst of intense activity.

The most common experience described in the heart centre, is the experience of a non-physical light. This is a reflection of the Light of *Sat-Chit-Ananda* and is characterised by a greater awareness and a spontaneous bliss. However, this experience of light is free from the blemish of physical light, where with a brighter perception of light there is correspondingly a greater sense of heat. Rather the opposite. It feels lighter and freer and cools the feverish mind.

Whereas, the thought, emotion, and activity of the centres of evacuation, generation and digestion are associated with intense voluntary physical actions, neurologically, the nerves in the heart region take sensory information from and regulate mostly involuntary function – heart and lungs. These nerves also supply the skin and other tissues in the chest and upper part of the abdomen. However, as discussed before, in each of the segments of the spinal cord the main sensations for our current consideration that incite voluntary reaction, thought, emotion and activity are visceral. Regulation of breathing and heart function is mostly involuntary though they may be modulated voluntarily partially as well. This is in keeping with the state of awareness in this centre, focussing unconsciously or involuntarily on the body and more consciously in a spiritual direction. This is again in contrast with the lower three centres where the visceral sensations perceived associate with intense physical reactions and wilful participation, whereas at this level the neurologic responses slip away into the involuntary domain.

**Vishuddha :**

As said before, the mind is characterised by patterns and is of the nature of impressions produced by actions. While in the *Anahata*, these patterns and impressions tend away from

assertions of physical identity, and toward unselfish or spiritual directions. Eventually, these patterns dissolve away into their source even as waves die out in calm water. No more attachment to external stimuli. A forceful movement toward higher states of consciousness, and an equally forceful adverse reaction against going toward materialistic directions characterise this state. The thoughts representing egoistic action and reaction in the mind calm down and dissolve away leaving a perception of a calm psychological space.

The nerves in this region are concerned with the supply of upper limbs and chest (somatic). As far as visceral sensations are concerned, only the nerve which supplies the diaphragm muscle involved in breathing emerges from this set. As pointed out before, the main inciter of reactions leading to attachment to the physical would be visceral sensations. Which are absent in this region for the most part. Hence, the focus of consciousness is significantly away from the material and toward the spiritual. It is interesting to note that anatomically, the neck mainly serves as a conduit for structures to go to and fro from the head to the rest of the body. In keeping with this nature, the focus of consciousness as well, when it ascends to the throat centre, has transcended the identification of oneself as an individualistic doer of actions and experiences itself as an instrument of the Highest Truth, being a mere conduit of the expression of that Truth.

**Overall, this theorisation of the integration of philosophical principles with the neurological organisation is summarised as follows :** Undivided Consciousness, which is the ultimate reality of all existence, both animate and inanimate has become this universe as its source and its living beings as their Self. The possibility of realizing this relationship and attaining to the highest Truth is maximised in the human being. Reality is perceived in various layers and aspects in relation to the nature and attitude of the ego, which acts as a prism in accordance to which Reality is perceived differently. Whereas, in the experience of the Absolute Truth, the ego is characteristically absent. Each layer of macrocosmic reality corresponds to a similar layer in the microcosmic human organism. In the physical human being, it is the nervous system which acts as the instrument of perception and reflection of different layers of Self experience. The anatomic organisation of the nervous system is designed to represent lower to higher layers of Self experience as one goes anatomically from lower to higher levels of the spinal cord and the brain. In the background of Absolute Consciousness experienced at the *Sahasrara*– center at the crown of the head, its reflection, the ego or the focus of consciousness hops about different centres of nervous action, having different experiences, good and bad in these centres. Through learning from experience (perhaps more from bitter than sweet) or from discrimination between the Real and unreal, this ego eventually realises that it is merely a reflection of the Highest, of the nature of Peace and Bliss. Then, in a tremendous struggle to free itself from the myriad identifications with relative aspects of reality, it withdraws step by step from the lower identifications – lower centres and gains higher and closer reflections of the Undivided consciousness in its awareness. Penultimately, it reaches a point where its only identity is in relation with the Absolute Truth. Finally the reflection ceases, the experience of two gives away to the experience of Non-dual. As we envision a basis of Infinite Consciousness, unattached and reflected as the individual soul, which in the context of the physical body, moves up and down in different planes of awareness corresponding to differing levels of the nervous system and goes through various pleasant and unpleasant experiences, ultimately turning its

gaze upwards toward the calm and majestic state of Unconditioned awareness, one is reminded of this beautiful allegory from the *Upanishad*.

द्वा सुपर्णा सयुजा सखाया
समानं वृक्षं परिषस्वजाते ।
तयोरन्यः पिप्पलं स्वाद्वत्त्य-
नश्नन्नन्यो अभिचाकशीति ॥१॥
समाने वृक्षे पुरुषो निमग्नोऽ-
नीशया शोचति मुह्यमानः ।
जुष्टं यदा पश्यत्यन्यमीश-
मस्य महिमानमिति वीतशोकः ॥२॥
यदा पश्यः पश्यते रुक्मवर्णं
कर्तारमीशं पुरुषं ब्रह्मयोनिम् ।
तदा विद्वान्पुण्यपापे विधूय
निरञ्जनः परमं साम्यमुपैति ॥३॥

Mundaka Upanishad, Third Mundaka, Canto I[20]

Two birds that are ever associated and have similar natures, cling to the same tree. Of these, the one eats the fruit of divergent tastes, and the other looks on without eating.

On the same tree, the individual soul remains (i.e., stuck); as it were; and so it moans, being worried by its impotence. When it sees thus the other, the adored Lord, and His glory, then it becomes liberated from sorrow.

When the seer sees the Purusha — the golden hued, creator, Lord, and the source of the inferior Brahman — then the illumined one completely shakes off both virtue and vice, becomes taintless, and attains absolute equality.

**Acknowledgements :**

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**References :**

1. Ramakrishna Math Chennai (2006); The Gospel of Sri Ramakrishna. Ch17 Pp 294.
2. Complete Works of Swami Vivekananda, volume 1, Raja Yoga, chapter 1, Introductory.
3. Ramakrishna Math Chennai (2006); The Gospel of Sri Ramakrishna. Ch 33 Pp 555.
4. Woon JT, Stringer MD. Clinical anatomy of the coccyx: A systematic review. Clin Anat. 2012 Mar;25(2):158-67.
5. Eickhoff SB, Grefkes C, Fink GR, Zilles K. Functional lateralization of face, hand, and trunk representation in anatomically defined human somatosensory areas. Cereb Cortex. 2008 Dec;18(12):2820-30.
6. Ramakrishna Math Chennai (2006); The Gospel of Sri Ramakrishna. Ch 1 Pp 70.
7. Ramakrishna Math Chennai (2006); The Gospel of Sri Ramakrishna. Ch 30 Pp 503.
8. Advaita Ashrama (2004) Prabuddha Bharata109 (3) 189-92
9. Ramakrishna Math Chennai (2006); The Gospel of Sri Ramakrishna. Ch 39 Pp 638.
10. Ramakrishna Math Chennai (2006); The Gospel of Sri Ramakrishna. Ch 39 Pp 637.
11. Ramakrishna Math Chennai (2011) Sri Ramakrishna - The Great Master, 3.2.
12. Advaita Ashrama (2016) The Complete Works of Swami Vivekananda 1(4).
13. Ramakrishna Math Chennai (2006); The Gospel of Sri Ramakrishna. Ch 26 Pp 425.
14. Ramakrishna Math Chennai (2006); The Gospel of Sri Ramakrishna. Ch 8 Pp 151.
15. Critchley HD, Harrison NA. Visceral influences on brain and behaviour. Neuron. 2013 Feb 20;77(4):624-38..
16. Harper & Brothers (1959) Swami Nikhilananda. TheUpanishads, Vol III.
17. Ramakrishna Math Chennai (2006); The Gospel of Sri Ramakrishna. Ch 3 Pp 85.
18. Vedanta Society of St Louis (2015); Ramakrishna As We Saw Him, Vaikuntha Nath Sanyal, Pp 389.
19. Vedanta Society of St Louis (2015); Ramakrishna As We Saw Him, Swami Saradananda, Pp 189.
20. Advaita Ashrama (2021)Swami Gambhirananda. Eight Upanishads, (2)143.

**Original Article**

# An Audit of Head Neck Oncology Work at The Ramakrishna Mission Seva Pratishthan

**Imon Dasgupta[1], Dipshankar Jana[2]**

**Abstract :**

We present an audit of the Head and Neck surgical case load and throughput at the Ramakrishna Mission Seva Pratishthan Vivekananda Institute of Medical Sciences for a two year period.

**Key Words :** Audit; Oncology; Head Neck; Joint Clinic

**Introduction :**

The Joint Head and Neck Clinic was started at our Institute in 2020 in response to guidelines from the National Medical Council[1]. From the start it has been a multi-disciplinary endeavour, with participation from ENT Head Neck Surgery, Maxillofacial Surgery, Oncology, Pathology and Radiology.

Patients with head and neck cancer require complex management which is best achieved in a co-ordinated, multi-disciplinary manner. A retrospective audit of the surgical management of such patients in our institute was undertaken to provide baseline data for analysis, so as to improve the service we are providing.

**Aims and Objectives :**

* To quantify the annual Head Neck oncology patient load in our Institute.
* To quantify the annual number of diagnostic and therapeutic procedures performed on such patients.
* To identify areas of improvement in the Head and Neck service.

**Methodology :**

Retrospective data was extracted from the theatre records of our Institute of all patients who underwent surgery for Head and Neck cancer in the period from 1st January 2023 till 31st December 2024. The data was then analysed according to various parameters.

**Analysis :**

**Patient Load, Age and Sex Distribution :**

A total of 251 patients underwent a Head Neck procedure in the two years under consideration.

In 2023, the total number of patients was 145 (81 male and 64 female), while in 2024 it was 106 (59 male and 47 female). The overall male -female ratio was the same each year. This is shown in Table 1.

| Year | Male | Female | Total |
|---|---|---|---|
| 2023 | 81 (56%) | 64 (44%) | 145 |
| 2024 | 59 (56%) | 47 (44%) | 106 |

**Table 1. : Gender distribution of total cases**

In both years the age specific incident rate was higher between the fifth and eighth decades; the maximum was seen in the sixth decade of life, as depicted in Fig 1.

[1]Junior Resident, Department of ENT Head Neck Surgery; [2]Resident Housestaff, Maxillofacial Surgery Unit, RKMSP VIMS

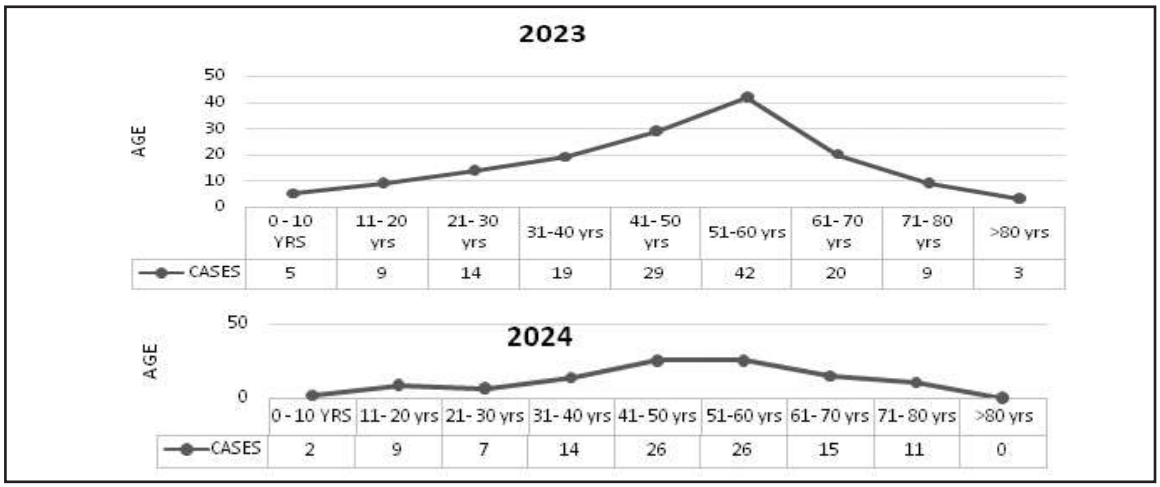



**Fig 1. Age specific incidence of patients treated by surgery**

**Number of Procedures and Anaesthesia :**

In 2023, 145 patients underwent 150 procedures: 60 procedures were diagnostic, while 90 procedures were therapeutic. Of these procedures, 29% were performed under local anaesthesia, while 71% were under general anaesthesia.

In 2024, 106 patients underwent 109 procedures: 56 procedures were diagnostic, while 53 procedures were therapeutic. Of these procedures, 35% were performed under local anaesthesia, while 65% were under general anesthesia (Table 2)

| Year | Diagnostic LA | Therapeutic LA | Diagnostic GA | Therapeutic GA |
|---|---|---|---|---|
| 2023 | 42 | 2 | 18 | 88 |
| 2024 | 37 | 2 | 16 | 54 |

**Table 2. Annual distribution of cased performed under specific anesthesia**

**Type of pathology and procedures :**

In 2023 the total 90 therapeutic procedures were performed upon the following sites: oral pathology (24), cervical lymphadenopathy (5), parotid neoplasia (6), laryngeal pathology (18), tonsillar mass (4), bilateral nasal mass (2), unilateral sinonasal pathology, (20), recurrent respiratory papillomatosis (2) and Sjogrens disease (2).

We performed 3 Medial Maxillectomy, 6 Parotidectomy ,11 Microlaryngeal surgeries, 6 DirectLaryngoscopic biopsies, 9 endoscopic sinus surgeries,1 debulking surgery,1 laser surgery (transoral), 34 thyroid surgeries, 1 right hemi-mandibulectomy with free fibular reconstruction, 1 partial Glossectomy with FAMM flap reconstruction, and one Near total maxillectomy.

In 2024, thetotal 56 therapeutic procedures were performed on the following sites: oral cavity pathology (24), parotid pathology (5), adenoid mass (1), cervical lymphadenopathy (2), laryngeal pathology (8), tonsillar mass (3), a Supra orbital bone cyst, a Vagal schwannoma, a bilateral sinonasal mass, unilateral sino nasal mass (17) and a Mccune Albright syndrome.

We performed 3 Medial Maxillectomy, 2 Parotidectomy, 7 Microlaryngeal surgeries, 6 Direct Laryngoscopic biopsies, 3 FESS surgery, 14 Thyroidectomy, 1 right hemi-mandibulectomy,

1 infrastructure maxillectomy.

**Non-surgical procedures :**

Three patients (diagnosed with Small cell Neuroendocrine carcinoma [SNEC] of the right maxilla , diffuse large B-cell Lymphoma and Nasopharyngeal carcinoma respectively) received a total of 15 cycles of chemotherapy as short admission patients. One patient diagnosed with Intestinal type Adenocarcinoma (ITAC) of the rightsinonasal complex received 4 cycles of post-operative topical chemotherapy on an outpatient basis on 2024.

**Discussion :**

All studies agree that the higher the surgical case load in Head and Neck cancer in a particular unit, the better the outcome in terms of patient survival and lower complication rates[2]. However there is no consensus on the ideal minimal case load for a cancer centre. One of the largest studies considered centers to be low, medium or high-volume if the annual case treatment load was less than 54, between 54 and 164 and over 165 respectively[3]. By that criteria we are a medium volume centre.

In the two years studied only one patient required a repeat biopsy. Amongst all the patients who underwent therapeutic surgery the biopsy report always matched the final histology report. 5 patients in 2023 and 3 patients in 2024 underwent biopsy followed by definitive surgery. A major problem is that we have no in-house Radiotherapy unit; patients who require postoperative or primary radiotherapy are referred to nearby facilities. One of the major determinants in treatment of our patients is the State Government sponsored health insurance scheme 'Swasthya Shathi'. Initially we were able to perform therapeutic oncosurgery under the scheme. The rules were changed in 2023 so that oncosurgery is only covered if the treating unit is a full-fledged Cancer Centre, with provision for both surgery and radiotherapy. This is the reason why, in 2024, the number of diagnostic procedures was more than the number of therapeutic procedures, and why there was an overall decline in therapeutic procedures compared to 2023.

Similarly, in the absence of a Nuclear Medicine unit we have no facilities for Positron Emission Tomography (PET) scans, Radio-iodine uptake scans and Radio-iodine ablation (RIA); the latter two are often required in the management of Thyroid carcinoma. Patients requiring any of these investigations/procedures again must be referred to other facilities.

**Conclusions :**

It is commendable that, in the absence of in-house Radiotherapy, the Head and Neck multi-disciplinary team is achieving the case load of a medium volume centre. The noticeable drop in therapeutic procedures in 2024 is indicative of the fact that in absence of Swasthya Shathi facilities, diagnosed patients are unable to complete their therapeutic treatment in our centre. Establishment of a Radiotherapy unit (or at least, an official understanding with the Radiotherapy unit of a cancer centre) would be beneficial to the patients as they would not have to attend multiple centres for their definitive treatment and avail of the existing expertise in our Institute.

**References :**

1. Sanyal SD, Sinha Roy D, Sengupta M, Ray P, Sarkar K, Das S, Raychowdhury R. The Joint Head & Neck Clinic at the Vivekananda Institute of Medical Sciences. Journal of Vivekananda Institute of Medical Sciences 2021; 44(II):10-14.
2. Eskander A, Irish J, Groome PA, Freeman J, Gullane P, Gilbert R et al. Volume-outcome relationships for head and neck cancer surgery in a universal health care system. Laryngoscope 2014; 124:2081–8.
3. Torabi SJ, Benchetrit L, Kuo Yu P, Cheraghlou S, Savoca EL, Tate JP et al. Prognostic case volume thresholds in patients with head and neck squamous cell carcinoma. JAMA Otolaryngology Head Neck Surgery 2019; 145:708–15.

Case Report

# Massive Pleural Effusion as A Presenting Feature of SLE : A Diagnostic Challenge

**Biswajit Mondal[1], Asha Mukherjee[2], Suparna Guha[3], Sadhna Sha[4], Guruprasad H.S.[5]**

**Abstract :**

Large volume pleural effusions as a presenting feature of Systemic Lupus Erythematosus (SLE) may present a diagnostic and therapeutic challenge. Exudative and transudativeaetiologies are both possible as well as co-existing infectious causes. Multiple aetiologies may also be found contributing to the effusion in the same patient. The optimal therapeutic modality is not clearly established. We hereby present a case report of a 9 year old male child, illustrating these dilemmas and briefly discuss the learning points therein.

**Keywords :**

Systemic Lupus Erythematosus, Pleural effusion

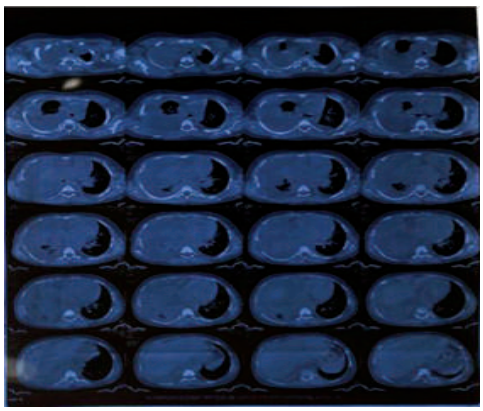
**Introduction :**

Serositis is a common feature of SLE. However, large volume effusion occurring as a manifestation of active SLE is rare. This finding can lead to a diagnostic dilemma as it may represent an inflammatory exudative effusion due to serositis, a coexisting infection which may be pyogenic or tubercular or have a transudativeaetiology due to complications of SLE like constrictive pericarditis or heart failure due to hypertension from renal involvement[1,2]. Hereby we present a 9 years old with SLE with such a diagnostic and therapeutic conundrum.

**Case Description :**

A 9 year old male child presented with fever of 1 month duration and swelling of the entire body for 5 days. He had a history of multiple skin lesions that started over the malar area with sparing of the nasolabial fold for the past 6 weeks which progressed to the abdomen and extremities. He was admitted elsewhere, and lupus was suspected, but he was also found to have a right sided consolidation and effusion, hence received antibiotics before transfer to our institute.

At admission the positive findings included a malar rash with erythematous plaques over the trunk andlimbs, pallor andanasarca. There were clinical findings suggestive of a right sided consolidation, pleural effusion and hepatomegaly. Investigation established a diagnosis of SLE, with massive right sided pleural effusion and patchy consolidation, along with Grade III A nephritis.



**HRCT showing right sided Massive pleuaral effusion**

[1]Junior Resident; [2]Senior Consultant; [3]Professor; [4]Visiting Physician; [5]Assistant Professor, Department of Paediatrics, RKMSP, VIMS

**Investigations :**

| | | | |
|---|---|---|---|
| Hb | 7.1 | Sr ANA | 185 |
| TC | 15200 (N90,L6) | Anti ds DNA | 450 |
| plt | 404000 | C3 | 17.3 |
| CRP | 44.3 | C4 | 4.5 |
| procal | 0.15 | DCT | 3+ |
| U pr:cr | 3.04 | Pl fl ANA | **1:640** |
| ALT | 67 | Retic ct | 1.5 |
| AST | 56 | alb | 2.3 |

**ECHO - Mild pericardial effusion**
**APLA - Negative**

Immune suppression was commenced with hydroxy chloroquine and oral corticosteroids at 1.5mg/kg daily. Though consolidation changes were present on the CT scan, preliminary investigations did not suggest bacterial infection, possibly due to prior treatment with antibiotics. All cultures were negative (blood, pleural fluid). The factors contributing to pleural effusion included serositis, infection and hypo-albuminemia. In view of the lymphocyte predominant effusion an extensive tuberculosis workup was done but was negative. As the respiratory compromise needed HFNC support and there was non-resolution of effusion with a week of antibiotic therapy, an intercostal drainwas inserted, draining 700 ml on day 1 with persistent drainage (150-200ml) on a daily basis. With these findings persistent pleural effusion was thought to be due to serositis, and steroid therapy was escalated to pulse methyl prednisone followed by 2 mg/kg/day of IV methyl-prednisolone, due to concerns about oral absorption in view of presumed gut oedema. With these measures there was a gradual reduction in pleural fluid drainage to less than 20ml / 24 hours over a period of 8 days after which the drain was removed.

A renal biopsy revealed class 3 lupus nephritis. Hypertension was present requiring multiple antihypertensive medications (enalapril, amlodipine, prazosin). The child was discharged after 26 days in hospital, with oral corticosteroid therapy, hydroxychloroquine and mycophenolatemofetil.

**Discussion :**

Pleuro-pulmonary involvement occurs commonly in childhood onset SLE (cSLE) with 7-75% of patients being affected as per case series[3]. Pleural involvement is the most common pulmonary manifestation of SLE (30 % of patients with cSLE). Pleural effusion may also be the sole presentation of SLE in a small number of cases (5%)[4]. In some autopsy series, pleural effusions have been found in 93% of cases.

**Aetiology :**

The majority of patients with cSLE may develop pleural effusion as part of serositis, resulting from pleural inflammation, and this is often bilateral and exudative in nature[1]. However we should evaluate for the presence of life threatening causes of pleural effusion such as infection, CCF, AKI, pulmonary embolism and malignancy. An acute cardiac diagnosis leading to CCF due to myocarditis, pericarditis, valvular insuficiency or endocarditis may be present in up to 17.8% of cSLE and may also lead to pleural effusion[5]. Renal involvement leading to AKI causing fluid overload may be a cause.

Effusion may accompany pulmonary embolism and malignancy as well. Apart from the above, anti TNFa medications and antihypertensives like hydralazine may cause drug induced pleuritis.

**Pathogenesis :**

Pleural inflammation leading to increased vascular permeability and decreased absorption of pleural fluid contributes to effusion. Local autoimmune complex depositions, production of pro inflammatory cytokines, compliment activation and direct binding of anti dsDNA antibodies to the mesothelium have also been postulated as cause[6,7].

**Clinical Presentation :**

Fever, cough, dyspnoea, pleuritic chest pain.

**Laboratory Features :**

Appearance of effusion - yellow or serosanguinous. Elevated levels of protein and LDH with normal glucose levels[1]. Cell count 200-15000/cmm with either neutrophilic or lymphocytic predominance. Lupus erythematosus (LE) cells may be found in the pleural fluid. A higher proportion of pleural ANA positivity is found in lupus pleuritis. It is more sensitive than specific. A titer of = 1:160 may differentiate lupus pleuritis from other causes[8]. Along with this criterion, homogeneous pleural fluid ANA staining patterns and pleural fluid to serum ANA titre ratios =1 may also point to the diagnosis. C3, C4 levels are both found to be low in lupus pleuritis.

**Treatment :**

NSAIDS and a short course of oral steroid or, in resistant cases, pulse methyl prednisolone. ICD may be rarely required. In chronic lupus pleuritis, not responding to medical therapy, local therapy may be resorted to. These options, with very limited pediatric experience include intrapleural steroid injections, pleurodesis with talc or tetracycline and as a last resort pleurectomy.[9]

**Conclusion :**

Large pleural effusions with SLE may be occasionally present and cause diagnostic and therapeutic dilemmas and need to be differentiated from infective causes. Pulse methylprednisolone may be helpful to resolve the serositis once infection is ruled out.

**References :**


1. Yao X, AbdHamid M, Sundaralingam A, Evans A, Karthikappallil R, Dong T, Rahman NM, Kanellakis NI. Clinical perspective and practices on pleural effusions in chronic systemic inflammatory diseases. Breathe (Sheff). 2020 Dec;16(4):200203.
2. Amarnani R, Yeoh SA, Denneny EK, Wincup C. Lupus and the Lungs: The Assessment and Management of Pulmonary Manifestations of Systemic Lupus Erythematosus. Front Med (Lausanne). 2021 Jan 18;7:610257.
3. Dai G, Li L, Wang T, Jiang W, Ma J, Yan Y, Chen Z. Pulmonary Involvement in Children With Systemic Lupus Erythematosus. Front Pediatr. 2021 Feb 2;8:617137.
4. Harvey AM, Shulman LE, Tumulty PA, Conley CL, Schoenrich EH. Systemic lupus erythematosus: Review of the literature and clinical analysis of 138 cases. Medicine. 1954; 33(4):291.
5. Chang JC, Xiao R, Mercer-Rosa L, Knight AM, Weiss PF. Child-onset systemic lupus erythematosus is associated with a higher incidence of myopericardial manifestations compared to adult-onset disease. Lupus. 2018 Nov;27(13):2146-2154.
6. Palafox-Flores JG, Valencia-Ledezma OE, Vargas-López G, Jamaica-Balderas L, Acevedo-Silva N, Castro-Fuentes CA. Systemic lupus erythematosus in pediatric patients: Pulmonary manifestations. Respir Med. 2023 Dec;220:107456.
7. Kriegel MA, Van Beek C, Mostaghimi A, Kyttaris VC. Sterile empyematous pleural effusion in a patient with systemic lupus erythematosus: a diagnostic challenge. Lupus. 2009 Jun;18(7):581-5.
8. Choi BY, Yoon MJ, Shin K, Lee YJ, Song YW. Characteristics of pleural effusions in systemic lupus erythematosus: differential diagnosis of lupus pleuritis. Lupus. 2015 Mar;24(3):321-6.
9. Breuer GS, Deeb M, Fisher D, Nesher G. Therapeutic options for refractory massive pleural effusion in systemic lupus erythematosus: a case study and review of the literature. Semin Arthritis Rheum. 2005 Apr;34(5):744-9.

Abstracts

# Abstracts from The 36th Annual Scientific Conference of The Ramakrishna Mission Seva Pratishthan Vivekananda Institute of Medical Sciences, November, 2024

## Outcomes of Medialisation Thyroplasty in Unilateral Vocal Fold Paralysis

**Debojyoti Dasgupta**

*Junior Resident, Department of ENT Head Neck Surgery*

**Background :** Unilateral Vocal fold paralysis presents with hoarseness and/or aspiration. Medialisationthyroplastyis a surgical procedure that aims to correct glottic incompetence and thereby restore voice.

**Aim :** To evaluate the change in voice quality in patients with unilateral vocal fold paralysis after undergoing type1thyroplasty.

**Methodology :** Preoperative assessment of voice with F0 (mean:190.75), GRBAS, Maximum phonation time (mean: 9.7 sec), VHI 10 (mean: 7.5 with 0.85SD), and loudness (mean 43.25dB) and glottic gap on fibreoptic laryngoscopy in 4 patients presenting with unilateral vocal fold paralysis was done. Each of these patients underwent contrast enhanced imaging of the larynx in order to rule out any organic causes of unilateral vocal fold paralysis. 100 percent of these patients underwent medialization thyroplasty (ELS Classification) with custom based silicone in the thyroid cartilage through a perichondrial window. Post operative voice assessment done on 0,3 and 6 weeks by measuring F0 (mean:241.75), GRBAS, MPT (mean 22.4 sec), QOL questionnaire VHI 10 (mean: 3.2 with 1.2SD) and loudness (mean:70.45), and glottic gap closure on fibreoptic laryngoscopy.

**Conclusion :** Type 1 thyroplasty brings about satisfactory improvement of voice and loudness with excellent patient satisfaction evaluated on QOL VHI.

## Endoscopic Orbital Decompression for Grave's Ophthalmopathy – Our Experience

**Moumita Sen**

*Senior Resident, Department of ENT Head Neck Surgery*

**Aim :** To document surgical outcome of endoscopic orbital decompression in cases of thyroid ophthalmopathy.

**Methodology :** A totalof four patients of thyroid ophthalmopathy underwent endo-nasal endoscopic decompression of the medial orbital wall between May 2023 and August 2024, in the Department of ENT and Head-neck Surgery. All the 4 patients wererefractory to medical treatment for opthalmoplegia. Pre-operative and post-operative VEP, free field optometry, tests for visual acuity and colour vision were documented and compared, both before and after the surgical interventions.The outcome measures were adjudicated in terms of improvement ofproptosis and eye movements.

**Results :** All the patients had significant improvement of proptosis and ocular movements after surgery. Complete eye closure at rest was also documented in the post operative period. There was minimal post-operativepain& crust formation with no history of epistaxis. No periorbital ecchymosis or nasalsynaechiae developed during follow up.

**Conclusions :** Endo-nasal endoscopic approach for medial wall decompression of the orbit in thyroidophthalmopathy is a safe procedure with significant functional outcome.

## An Unusual Case of Squamous Cell Carcinoma of Palate

**Imon Das Gupta**

*Junior Resident, Department of ENT Head Neck Surgery*

**Background :** Oral cancer is one of the three commonest types of cancer in India. The age-adjusted rate of oral cancer in India is 20 per 100,000 population; it accounts for over 30% of all cancers in the country.

**Aim :** We present aninteresting case which presented several challenges in management.

**Methodology :** The decision making with regard to management was complicated at each stage, requiring intense discussion in the Joint Clinic.

**Conclusion :** The case is illustrative of the need for discussion of complicated Head Neck patients by a multidisciplinary team at each stage of management.

## Multimodal Imaging Profile in Acute Posterior Multifocal Placoid Pigment Epitheliopathy

**Sipra Barman**

*Junior Resident, Dept. of Ophthalmology*

**Abstract :**

- **Introduction :** Acute posterior multifocal placoid pigment epitheliopathy (APMPPE) is a rare inflammatory disease of the spectrum of the white dot syndromes, first described by Gass in 1968
- **Aims and objective :** Multimodal imaging have been important in understanding of the pathophysiology of the disease, allowing a better characterization of the morphology of this condition.
- **Methods :** narrative
- **Results :** A 22-year-old female presented with sudden painless onset of blurring of vision in both eyes for 7 days. Ophthalmological examination showed yellowish-white placoid lesions at the RPE in the posterior pole. Optical coherence tomography shows hyper-reflective outer retina with disruption of ellipsoid zone and bacillary layer detachment, Optical coherence tomography angiography shows abnormalities

in choriocapillary flow, Fundus fluorescein angiography shows early hypofluorescence corresponding to the placoid lesion followed by late, hyperfluorecent staining leading to the diagnosis of APMPPE. It's a rare self-limiting inflammatory condition, affecting the inner choroid and the outer retina.

- **Conclusion :** Multimodal imaging played a key role in the characterisation of disease phenotype, and advances in imaging technologies have resulted in a better understanding of its pathophysiology.

## A Case of Unilateral Parainfectious Optic Neuritis – Diagnosis and Management

**Alokan Sengupta, Vivek Dutta**

*Junior Resident, Dept. of Ophthalmology*

**Background :** Opticneuritis maybeassociated with viral infections like measles, mumps, chicken pox, rubellaetc. The usual time of presentation is generally 1-3 weeks after a viral infection. The patient usually presents with bilateral papillitis. Occasionally there maybe neuroretinitis. We present a case of a middle-aged male who presents with unilateral optic neuritis after suffering from a viral infection.

**Method :** A 52 year old male presented with painless loss of vision in his left eye 3 weeks after suffering from viral fever. Visual acuity in his right and left eyes were 6/9 and 6/36 respectively. IOP was normal with mild anterior uveitis in left eye. There was left eye RAPD. Fundus examination of left eye revealed papillitis and serous macular detachment. OCT macula and OCT RNFL showed optic nerve head swelling and macular subretinal fluid. Treatment with oral steroids and topical NSAIDs was commenced.

**Result :** Over a period of 4 weeks, the visual acuity in his left eye gradually improved to 6/18. A repeat OCT macula and OCT RNFL showed resolving optic nerve head swelling and decreased macular subretinal fluid. The patient wasasked to follow up after 3 weeks.

**Conclusion :** Parainfectious optic neuropathy is more frequently seen in children compared to adults. In our case the patient, who was amiddle aged adult male,had moderately severe unilateral visual loss without any other neurological features. The patient responded favourably to oral steroids.

## Hyphema After Schiotz Tonometry following Uneventful Cataract Surgery

**Sweta Bhowal**

*Junior Resident, Dept. of Ophthalmology*

Sudden appearance ofhyphema after a routine Schiotz tonometry procedure in a busy Rural Hospital Eye OPD is an unlikely event. Nevertheless, considering it has occurred, the predisposing factors should be investigated and could be due to sympathetic overdrive, strenuous conditions, valsalva manoeuvre, blood dyscrasias, neovascularisation of iris or at the angle of the anterior chamber, inflammatory conditions, post intraocular procedures, medications and trauma.

We present a case where such a situation arose in a rural setup during District postings. The patient was called to a higher centre for evaluation where no apparent cause could be appreciated, so by exclusion of all other causes, it was taken into consideration that incomplete healing of wound lead to the mishap following instrumentation. He was diagnosed with advanced optic atrophy of right eye with progressive disc changes in left eye following all investigations.

**Clinical Implications :**

Though a very rare occurrence, it is best to use any instrumentation cautiously over ocular surface after any ocular surgery to avoid mishaps. The need for awareness amongst healthcare providers and patients for early and regular checkups to prevent visual debilitation is vital.

## Ovarian Fibroid-incidental Diagnosis of A Rare Entity

**Hadikul Sk.**

*Junior Resident, Department of Obstetrics and Gynaecology*

**Guide - Prof. Sajal Datta, Dr. Babita Saha**

Mrs. Aruna Devi, a 43-year-old woman, presented with irregular, frequent, and heavy vaginal bleeding for the past 4-5 months, along with passage of clots. She had no abdominal pain. Her last menstrual period was on 14.03.23. She has a history of hypothyroidism, controlled with levothyroxine, and has been using combined oral contraceptive pills for cycle regularization. Gynecological examination revealed a firm, non-tender, 12-14 week-sized mass in the pelvis, palpable through the posterior fornix. Ultrasound indicated a large (97x89 mm), complex cystic mass in the left adnexa, likely ovarian in origin. CA 125, CEA, LDH, AFP, and Beta HCG levels were within normal limits. A CT scan suggested a uterine fibroid (12x6 cm) with external compression of the right ureter.

Laparotomy revealed a bulky uterus with a small fibroid and a large, variegated mass in the left ovary, which was impacting the pouch of Douglas. A total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed. Histopathology of the left ovarian mass showed features consistent with a leiomyoma, with spindle cells and dilated vascular spaces, without evidence of malignancy. No mitotic activity or necrosis was noted. The native ovary was replaced by leiomyoma.

This case represents a rare primary ovarian tumor, diagnosed incidentally as leiomyoma after histopathological examination. Differential diagnoses included other solid ovarian tumors, with immunohistochemistry helpful in confirming the final diagnosis.

# Secondary Infertility with Intrauterine Foetal Skull

**Farmina Siddiqua**

*Junior Resident, Department of Obstetrics and Gynaecology*

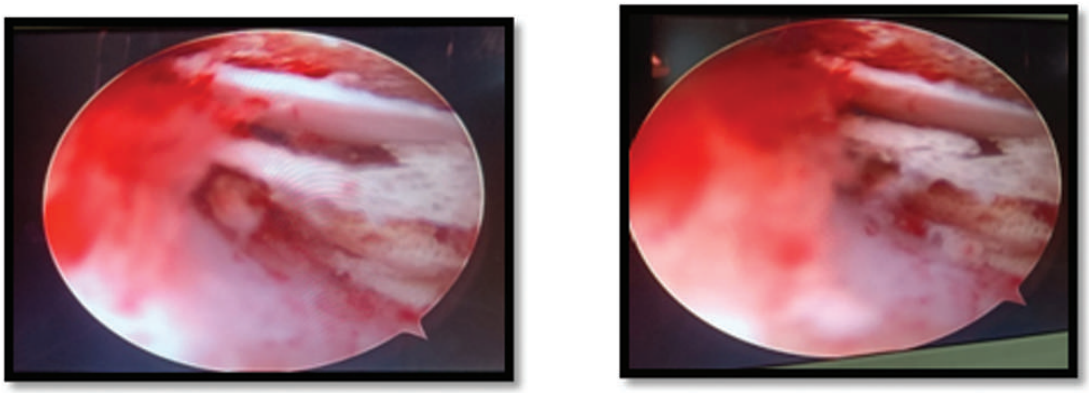
Infertility is defined as inability to conceive evenafter 1year of unprotected intercourse. Secondary infertility defined as infertility in a couple whom already had at least one pregnancy between them irrespective of the result of the pregnancy. The cause of secondary infertility can be traced to either partner.

33 years P1+1 female came to OPD complaining of inability to conceive last 3 years. She had history of one vaginal delivery 7 years ago and D and E 4 year ago. Her menstrual cycle was regular,lasting for 2 to 3 days, bleeding average, no history of dysmenorrhoea. There was no history of galactorrhea. Her husband was non smoker and non alcoholic.

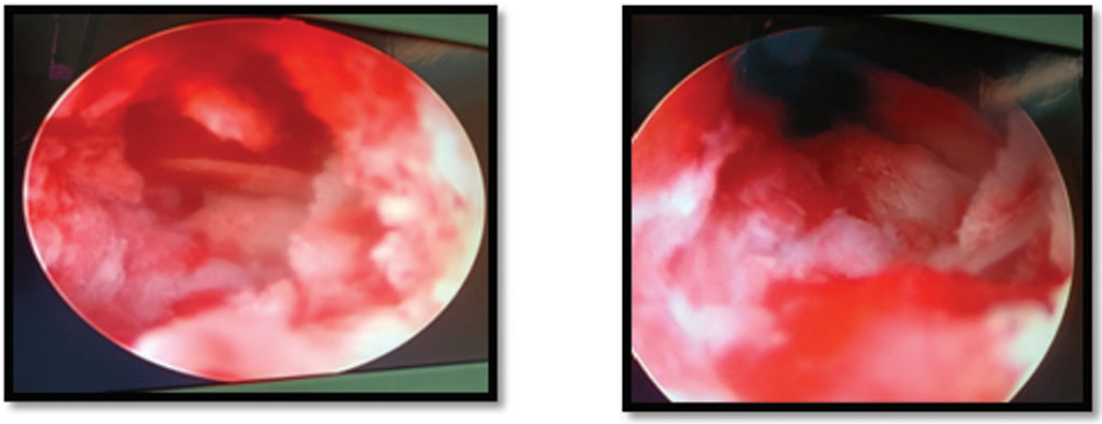
All routine blood invesgation was done which came out normal. Transvaginal ultrasound was done, report shows bulky uterus with a linear echogenic focus (1.69cm) seen within uterine cavity (? nature /IUCD) with cystic ovaries. There is no history iucd insertion and unaware of the fact of iucd insertion in previous D&E operation. Pervaginal examination was done and no thread was seen coming through the os. Hysterosalpingography was done and uterine cavity was normal in size and shape, right tube partially fills with no spillage and left tube does not fill.

Diagnostic laparohysteroscopy f/b chromopertubation was planned and on hysteroscopy uterine cavity was filled with whitish foreign material (? foetal bone), both Ostia could not be visible due to foreign body and on chromopertubation bilateral tubes conglomerulated and no spillage of dye noted. Whitish foreign material (? Foetal bone) sent for HPE and report showing proliferative endometrium along with plenty of bits of calcified material.

Diagnostic laparohysteroscopy have great importance in diagnosing secondary infertility. It's considered the gold standard for evaluating and managing intrauterine pathology. Hysteroscopy should be a part of routine work in the evaluation of infertile women.



**Before Hysteroscopic Removal of Foreign Body**



**After Hysteroscopic Removal of Foreign Body**

## Management of Posterior Interosseous Nerve Palsy in A Post-operatve Case of Plating Done for Proximal 1/3rd Both Bone Forearm Fracture

**Sandipan Bhattacharya**

*Junior Resident, Department of Orthopedics*

**Introduction :** Posterior interosseous nerve palsy is a known complication after a both bone plating operation after fracture of both bone forearm. Detailed examination evaluation proper surgery and adequet post operative rehabilitation can reduce morbidity and regain motor and sensory function of the patient.

**Case Summary :** A 26 years old male patient, a student, from a low socio economic background visited our OPD on 25th March 2024 with complaint of inability to extend his right index finger, middle finger and thumb fully and not having a firm grip.

**Past Surgical History :** Right proximal 1/3rd forearm plating back in March, 2022.

**On Examinatiom :** He had inability to extend his right index finger, middle finger and right thumb.

There was no sensory deficit over his right forearm or dorsum of hand.

Tinel's sign was positive till mid right forearm. Right wrist dorsiflexion was unaffected.

Sufficient time elapsed since date of primary surgery for regeneration of neuromuscular end plate, therefore, a tendon transfer surgery was done on 27th March 2024.

Follow up after two weeks showed Range of extension substantially increased.

**Conclusion :** While operating on proximal 1/3rd forearm, proper care and attention to be given while retraction.

Forearm to be pronated fully while operating.

To wait for sufficient time before operating again for tendon transfer (11-12 months), the time required for regeneration of neuromuscular motor end plate.

# A Case Series of Post Infectious Glomerulonephritis in Adults in Atertiary Care Hospital in Kolkata

**Subham Mondal, Santa Subhra Chatterjee, Sandipan Mukherjee**

*Department of General Medicine*

**Introduction :** Post infectious glomerulonephritis occurs commonly secondary to infection & presentsas nephritic syndrome.

**Objectives :** To study various clinical manifestation, prognosis, treatment of PIGN.

**Case Details :**

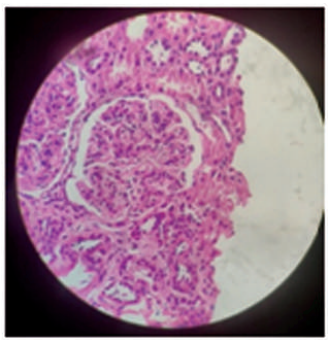
**Case 1 :** 46 Years female admitted with fever, shortness of breath, generalized body swelling. Shehad rapidly progressing renal failure (Initial Urea 178mg/dl, Creatinine 8mg/dl, urine output 500ml in 24hrs which progressed to anuria) and was put on dialysis. Urine had plenty of pus cells, plenty of RBC with presence of albumin. Serum C3 was low, C4 was normal, ANA, MPO ANCA & PR3 ANCA were Negative. Kidney biopsy suggested feature of PIGN. Patient was managed with IV Methylprednisolone and was on dialysis support for around 1.5 months.

**Case 2 :** 54 Years male complained offever with cough for 2 weeks followed by pedal swelling and facial puffiness for 2 days, decreased urination and high coloured urine. Patient had new onset hypertension (BP 200/100). Urinehad18-20/hpf RBCs, granular casts, albumin 2+. 24 hr urinary Protein excretion was 3.1 gm. Serum C3 was low, C4 was normal; ANA, MPO & PR3 ANCA were Negative. Kidney biopsy was suggestive of PSGN.

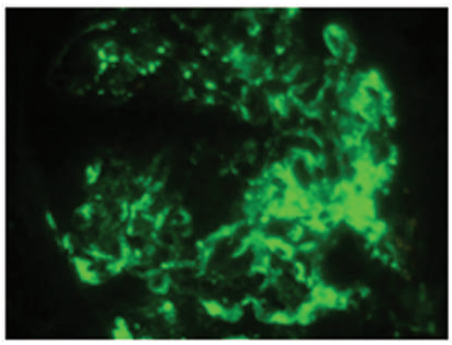
**Case : 3** 49 Year complained of progressive bilateral pedal swelling for 3 days with history offever with cough10 days ago. HRCT Thorax showed bilateral lung consolidation. Urine had 8-10 RBC/hpf, albumin 2+. 24 hour urinary protein was 10 gm. Serum c3 c4 were normal anti GBM antibody was negative. Renal biopsy showed acute PSGN.

**Conclusion :**

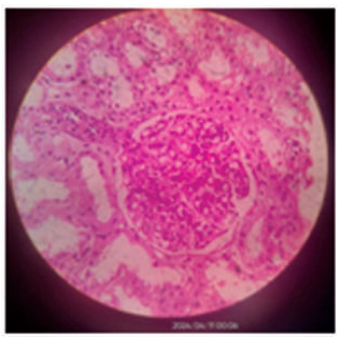
Among 3 cases of PIGN, Case 1 presents as a rapidly progressive glomerulonephritis, requiring dialysis and around 2 months to recover. Case 2 represents classical nephritic syndrome, resolved on its own without any aggressive treatment. Case 3 showed nephrotic range proteinuria which should be differentiated from other causes of nephrotic syndrome.



**Case 1**



**Case 2**



**Case 3**

## Arginine Vasopress in Deficiency (AVP-D)

**Ashmita Giri**

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**Introduction :**

Arginine vasopressin deficiency (AVP-D) formerly known as central diabetes insipidus (DI) is a rare disorder with diverse etiologies. Approximately 30-50% cases of AVP-D are idiopathic. Hypophysitis is a rare etiology of AVP-D which consist of inflammation of pituitary gland. Among all other presentations of hypophysitis, diabetes insipidus kind of presentation is quite uncommon.

**Case Description :**

A 43 year old female admitted with complain of polyurea and polydipsia of around 15-20 litres in a day since last 4 months. Her urine and serum osmolality was done through freezing point depression technique where reports were 86 mOsm/kg and 297 mOsm/kg respectively. Vasopressin test was done where AVP-D was diagnosed. MRI pituitary with gadolinium contract was done where stalk thickening was noted (>4mm). IgG4 disease, germinoma, other germinomatous lesion, sarcoidosis was ruled out. ANA profile showed SSA native antibody positivity with low titre. She was started on desmopressin and responded well.

**Conclusion :**

Any patient presenting with polyuria and polydipsia should be properly investigated because continuing symptomatic management without addressing the etiology can be detrimental. AVP-D is a rare presentation of hypophysitis which we should keep in mind. Proper workup with follow up is essential.

## CMV Infection in Perinatal Period and Importance of Urine CMV PCR and Early Treatment

**Moulik Pariya**

*Junior Resident, Department of Pediatrics*

**Introduction :** CMV is one of the infections that affects the baby in the perinatal period, and can target multiple organ like liver,eye, brain etc. Here we are discussing about three such cases of CMV infection diagnosed with the help of urine CMV PCR and treated according to protocol and patients improved.

**Objective :** To highlight the importance of urine CMV PCR and early treatment in cases of CMV infection in baby in perinatal period.

**Case Summary :** All these patients presented in the perinatal perod, with interest, one presented with hemochromatosis. Conjugated fraction of bilirubin was raised. CMV IgM was not positive in all the cases however when urine CMV PCR came positive,they were treated with valgancyclovir and clinical improvement was seen.

**Method :** A detailed clinical examination and multidisciplinary diagnostic approach were employed including both pathological and radiological investigations.

**Result :** Condition of patients improved with medical management,currently in follow up.

**Conclusion :** These cases undermines the value and importance of urine CMV PCR for diagnosing perinatal CMV infection in baby and also the need of urgent treatment for better prognosis of the patient.