The speciality of E.N.T. or Otolaryngology deals with disorders that range from extremely minor (such as colds, sore throat) to very complex (such as cancer). They also bring hope for the hearing-impaired. Technological advances in the field of hearing aids and cochlear implants has made this possible. Every branch of surgery has rapidly growing minimally invasive surgery – endonasal surgery is a fine example.

Dr. Mankekar has put together articles ranging from approach to common E.N.T. problems to pioneering work on cochlear implants done at Hinduja Hospital. Allergic rhinitis has already been covered in our earlier issue on ‘Allergies’. Dr. Mankekar has highlighted the role of the audiologist in numerous success stories, in this issue.

Dr. Reeta J. Dalal
Consultant Physician

From the Editor’s Desk

2 From the Editor’s Desk
Dr. Reeta J. Dalal

3 Guest Editorial
Dr. Gauri Mankekar

4 Hearing Loss & Hearing Aids
Nishita Mohandas, Rajesh Patadia

7 Implantable Hearing Devices
Dr. M.V. Kirtane, Dr. Gauri Mankekar

10 Epistaxis
Dr. Tejal Bhatiwala, Dr. Rumita Acharya, Dr. Sourabh Pachauri

12 Balloons In The Nose
Dr. Gauri Mankekar

14 Balloon Dacryoplasty
Dr. Sunil Moreker

15 Don’t ignore a Hoarse voice
Dr. Payal Chitranshi, Dr. Kashmira Chavan

19 Speech Therapy
Binu Thomas, Roohee Dhotre

21 Psychological Effects of Snoring in Children
Anupama Shah

22 Snoring and obstructive sleep apnea is there a cure?
Dr. Amitav Shukla

24 Approach To Oral Ulcers
Dr. A.G. Tembe, Dr. Rohini Samant

27 Oral Cancers
Dr. Payal Chitranshi Bhattacharyya, Dr. Murad Lala

30 Brachytherapy in Head & Neck Cancers
Dr. Vivek Anand

32 Ear, Nose, Throat in Systemic Diseases
Dr. Simran Singh

35 Hinduja News

40 Welcome
ENT Surgeons have progressed from cleaning ears and performing tonsillectomies to restoring hearing with ossicular chain prostheses and high-tech gadgets like cochlear implants, BAHA and vibrant soundbridge. In the 1700s, hearing impairment was overcome with the use of simple trumpets. This, over the centuries, evolved into a trumpet with spectacles, then an ear tube and finally in the 1930s to a wearable (body worn) multi-part hearing aid. With improvement in microphone, battery and transistor technology the hearing aids became smaller and better. In the 1980s and 90s, lithium ion batteries made the hearing aids invisible (in the canal) and introduction of digital technology improved sound as well as hearing clarity of the hearing aids. Meanwhile advances in optics and camera has enabled minimally invasive sinus surgeries, and endonasal treatment for excessive tearing due to nasolacrimal duct blocks. We ENT Surgeons, continue to treat common problems like oral ulcers, epistaxis, snoring and vertigo, while voice and swallowing disorders have been added to our repertoire. Our work is complemented by the audiologist – speech and swallowing therapist. They help us to diagnose and evaluate hearing loss, provide counseling about non-surgical methods of treating hearing loss with hearing aids, program the digital hearing aids and cochlear implants besides giving therapy for voice and swallowing disorders. This Newsletter gives an update on the team work of the ENT Surgeon and audiologist – speech therapist.

Dr. Gauri Mankekar
Hearing Loss & Hearing Aids

Hearing impairment is one of the most common birth defects. A wide variety of hearing solutions are available so that persons with hearing loss can listen and actively participate in social activities.

By Nishita Mohandas, Rajesh Patadia

HEARING LOSS IS an often invisible disorder that can vary in severity and affect anybody from a new born baby to someone celebrating their 100th birthday. About 3 out of every 1000 new born babies are born with some form of hearing impairment which makes it one of the most common birth defects in the world.

There are basically three types of hearing loss:

→ **Conductive hearing loss** - wherein sound is not conducted efficiently through the outer and middle ears due to:
  
  - Impacted wax in the ear canal
  - Perforation of the ear drum
  - Fluid in the middle ear
  - Discontinuity or fixation of the tiny bones or ossicles of the middle ear.

It can often be corrected through medicine, surgery, hearing aid or a middle ear implant as in a stapedectomy or ossicular replacement prostheses.
Sensorineural hearing loss – is caused by
• Damage to the inner ear (cochlea)
• Birth injury (neonatal jaundice or hypoxia) to the nerve pathways from the inner ear to the auditory centers in the brain.
• Drugs that are toxic to the auditory system, genetic syndromes, noise exposure / viruses / head trauma / aging and tumors.

People with sensorineural hearing loss experience a reduction in sound level, speech understanding and hearing clarity. It cannot be corrected medically or surgically and is a permanent loss, but hearing clarity can be improved by the use of hearing aids and more recently with Cochlear Implant.

Mixed hearing loss - sometimes a sensorineural hearing loss occurs in combination with a conductive hearing loss where in there may be damage in the outer or the middle ear and the cochlea or auditory nerve. In these cases a combination of surgery and hearing aids can alleviate the problem.

Hearing loss can be evaluated using the following tests:

1. Pure Tone audiometry is a subjective test wherein the patient is given test sounds at specific frequencies and loudness to test his / her hearing acuity.

2. Impedance audiometry / tympanometry is an objective test to measure the stiffness of the ear drum and middle ear. It helps to detect fluid in the middle ear or disruption / fixation of the ossicular chain

3. Otoacoustic emissions helps to screen hearing in newborns and helps to determine whether the cochlea is functioning or not.

4. BERA or brain stem evoked response audiometry is an objective test which measures brain wave activity in response to test sounds like clicks or tones. It helps to diagnose integrity of the auditory pathway, hearing loss and assessment of neurological function.

5. Auditory steady state response or steady state evoked potential (ASSR or SSEP) is an objective auditory evoked response elicited with modulated tones that can be used to predict hearing sensitivity.

Degree of hearing loss refers to the severity of the loss. Hearing loss (HL) is measured in decibels (dB) and not in percentages. The general hearing loss categories used by most ‘hearing’ professionals -
- Normal hearing (0 to 25 dB HL)
- Mild hearing loss (26 to 40 dB HL)
- Moderate hearing loss (41 to 70 dB HL)
- Severe hearing loss (71 to 90 dB HL)
- Profound hearing loss (greater than 91 dB HL)

BERA and SSEP are useful diagnostic tools in very young children and non responsive adults as they do not require active patient participation.

CHECK LIST

Hearing loss can be evaluated using the following tests
- Pure Tone audiometry
- Impedance audiometry / tympanometry
- Otoacoustic emissions
- BERA or brain stem evoked response audiometry
- Auditory steady state response or steady state evoked potential (ASSR or SSEP)

ABOUT 3 OUT OF EVERY 1000 NEW BORN BABIES ARE BORN WITH SOME FORM OF HEARING IMPAIRMENT WHICH MAKES IT ONE OF THE MOST COMMON BIRTH DEFECTS IN THE WORLD.
HEARING AIDS

The appropriate style of the hearing aid is dependant on the audiogram, shape and size of the canal, dexterity and of course, cost, as hearing aids can be expensive!

- **Hearing Aids**
  Most people need to wear a hearing aid when they suffer from a hearing loss. Hearing aid is an electronic device that picks up and amplifies the sound to make it louder so that a person with hearing loss can listen, communicate and participate more fully in daily activities in both quiet and noisy situations.

  Hearing aid components:
  - One or more microphones to gather sounds and convert it to electrical impulses
  - An amplifier to increase the strength of the impulses
  - The receiver to transform electrical impulses back into sound waves and redirect them into the ear of the wearer.
  - A battery to supply the energy source.

Hearing aids are available in variety of styles wherein they differ from their size, placement and the degree to which they amplify and also the different technology they offer.

Style of hearing aid can be

1. Body worn where the hearing aid is a bit bulky
2. Behind the ear (BTE) wherein the instrument rests behind the ear and is attached to a custom made hearing aid.
3. In the ear (ITE) where the device is custom made and the product fills the concha and some portion of the ear canal.
4. In the canal (ITC) where they fit only in the outer portion of the ear canal.
5. Completely in the canal (CIC) which is the smallest device available and is cosmetically desirable because it fits deeply in the canal and takes advantages of the ears natural resonance and shape.

Technology of the hearing aid depends on the electronics used. We have two terms “Analog” and “Digital” which refer to how a hearing instrument’s amplifier processes the sound.

- Analog hearing aids convert sound waves into electrical signals which are amplified by making the continuous sound waves larger. They can be conventional or programmable.
- Digital hearing aids convert sound waves into numerical course similar to the binary code of a computer before amplifying them. Because the code also includes information about a sound’s pitch or loudness, the aid can be specially programmed to amplify some frequencies more than others.

A hearing test is the only way for you to know what hearing aid is best for your severity and type of hearing loss. The appropriate style of the hearing aid is dependant on the audiogram, shape and size of the canal, dexterity and of course, cost, as hearing aids can be expensive! The rates vary from Rs.4000/- for an analogue body worn model to Rs.1,50,000/- for an invisible digital multichannel model.
Implantable Hearing Devices

With advancement in technology, there are now several types of implantable hearing devices such as cochlear implants, auditory brainstem implants, bone anchored hearing aids and vibrant sound bridge.

By Dr. M.V. Kirtane, Dr. Gauri Mankekar

Better understanding of hearing physiology and advancements in digital technology have provided many benefits to the hearing impaired. Today there are several types of devices for almost all types of hearing impairment - from non-implantable hearing aids to implantable hearing devices like cochlear implants, auditory brainstem implants, bone-anchored hearing aids and vibrant sound bridge.

→ Cochlear Implants
Cochlear Implants have revolutionized the treatment of profound hearing impairment. The implant provides sound perception by means of an electrode surgically implanted into the inner ear. Candidates for cochlear implant must have bilateral, profound sensorineural hearing loss that cannot be helped with use of the most powerful hearing aids. Therefore all candidates for cochlear implant should have a trial with hearing aids. This is followed by further audiological testing, assessment of parental/family expectations and motivation, as unrealistic expectations and poor motivation can result in poor outcomes. Families also need counseling regarding the need for long-term therapy, variable outcome and limitations of implantation.
CT and MRI scanning is mandatory pre-implantation to evaluate the anatomy of the mastoid and cochlea and the status of the cochlear nerve, and a functional cochlear nerve is integral to cochlear implantation. CSF leaks can be expected in cases of incomplete partition between the cochlea and the internal auditory canal. Postmeningitis hearing loss could be associated with fibrosis and ossification of the cochlea, and such patients require cochlear implantation at the first sign of appearance of bone or fibrous tissue in the cochlea. Pediatric and general evaluation is necessary to evaluate fitness for surgery. The surgery itself is like any other ear surgery and requires only one day hospital admission. The implant is “switched on” once wound healing is complete. Subsequently the implant processor needs to be programmed at regular intervals for optimal hearing experience. However the most important aspect is the prolonged rehabilitation and therapy required especially for congenitally hearing-impaired children to enable them to join mainstream schools.

→ **Auditory brainstem implants (ABIs)**

Were designed to be used in neurofibromatosis type 2 (NF-2) in which tumors involve complexes of the eighth cranial nerve and render the patient anacusic (unable to hear). Since there is no functioning cochlear nerve, a cochlear implant cannot be considered. The device is indicated in patients with NF-2 aged 12 years or older. They have also been used with varying success in patients born with cochlear nerve aplasia, those with traumatic cochlear-nerve avulsion, and those in whom cochlear implantation is unsuccessful (for salvage treatment).

ABIs bypass the cochlea and cochlear nerve and are implanted into the lateral recess of the fourth ventricle adjacent to the cochlear nucleus to provide the patient with auditory perception. Implantation may be done during tumor removal on the first or second side or as a separate procedure. Because of possible injury to the cochlear nucleus due to radiotherapy, prospective recipients who have undergone gamma-knife irradiation should be considered with extreme caution. The ABI provides enough auditory information to improve lip-reading abilities in most, and a few are even able to achieve open-set (no lip-reading cues) speech understanding. Performance may improve for up to 8 years after implantation.

→ **Bone - anchored Hearing - Aid (BAHA)**

When Beethoven went deaf, he continued to compose music by using a tuning fork to help him hear tones. He would press the fork against his head and use his bone conduction to listen!! We hear sound by air conduction, where sound waves travel from the outer ear via the ear canal and middle ear to the inner ear (cochlea). We also hear

**CHECK LIST**

- Candidates for cochlear implant must have bilateral, profound sensorineural hearing loss that cannot be helped with use of the most powerful hearing aids.
- Auditory brainstem implants were designed to be used in neurofibromatosis type 2 in which tumors involve complexes of the eighth cranial nerve and render the patient anacusic.
- Bone - anchored Hearing - Aid is beneficial for people with conductive and mixed hearing impairment who cannot wear conventional hearing aids and people with one-sided hearing loss as a result of surgery for acoustic neuroma.
through bone conduction, where vibrations bypass the outer and middle ear travelling directly to the inner ear through the jaw and skull bones. Most of us hear via both air and bone conduction. Traditional hearing aids utilize air conduction.

BAHA is beneficial for people with conductive and mixed hearing impairment who cannot wear conventional hearing aids, for example, people with chronic infection of the ear canal, patients with absence of or a very narrow ear canal as a result of congenital ear malformation, infection or surgery, and people with one-sided hearing loss as a result of surgery for acoustic neuroma.

The device consists of three parts: a titanium implant, an external abutment, and a sound processor. The titanium implant is surgically placed in the mastoid bone behind the ear and over time naturally integrates with the skull bone. For hearing, the sound processor transmits sound vibrations through the external abutment to the titanium implant. The vibrating implant sets up vibrations within the skull and inner ear which stimulate the nerve fibers of the inner ear, allowing hearing.

Prior to BAHA surgery, hearing evaluation is performed to assess the degree and type of hearing loss. Then a trial with a BAHA test rod or test band is given to assess whether the patient can benefit with the device. A CT scan of the temporal bone is done to find out the thickness of the skull bone behind the ear. If the thickness is less than 3mm - for example, in children under the age of 10 years or patients with poor bone quality then BAHA surgery has to be performed in two stages. In others, the surgery can be performed as a single-stage procedure.

→ **Vibrant Soundbridge device**

The Soundbridge device is a semi-implantable device composed of an external sound processor and amplifier, an audio processor, and an internal vibrating ossicular prosthesis (VORP) fitted surgically on the middle ear ossicle (incus long process or stapes head) or on the round window membrane. Sound passes into a microphone on the postauricular audio processor and is transmitted through the skin to an implanted receiver on the VORP. Candidates for vibrant sound bridge include adults aged 18 years and older with moderate-to-severe sensorineural hearing loss, having experience with traditional hearing aid fittings and desirous of an alternate hearing system. Prior to the surgery the patients undergo audiological evaluation and are given a trial to determine their candidacy. The VORP is implanted through a postaural incision (similar to a cochlear implant) and conducts the sound to a magnet surrounded by a coil called the floating mass transducer (FMT). The transducer is attached to the long process of the incus and the magnet hugs the long axis of the stapes, which causes it to vibrate.
Epistaxis

The primary aim in the management of epistaxis is to stop the bleeding and monitor the vital parameters of the patient.
By Dr. Tejal Bhatiwala, Dr. Rumita Acharya, Dr. Saurabh Pachauri

EPISTAXIS OR NASAL bleeding, has been reported to occur in up to 60 percent of the general population. The condition has a bimodal distribution, with incidence peaks at ages younger than 10 years and older than 50 years. Epistaxis appears to occur more often in males than in females.

The rich vascular supply of the nose originates from the ethmoid branches of the internal carotid arteries and the facial and internal maxillary divisions of the external carotid arteries. Depending upon the site of bleeding epistaxis usually is described as:

- Anterior – is usually from Littles area i.e antero-inferior part of nasal septum (Kiesselbach’s plexus)
- Posterior – is usually from Woodruff’s plexus i.e from posterior end of middle turbinate.
Common Causes of Epistaxis

**→ Local causes**
epistaxis digitorum (nose picking), Rhinitis, Trauma, Septal deviation, Foreign bodies, Septal perforation, Intranasal neoplasm or polyps, Irritants (cigarette smoke), Medications (topical steroids), Vascular malformation or telangiectasia.

**→ Systemic causes**
hypertension (common cause for posterior bleeding), Hemophilia, Leukemia, Liver disease (cirrhosis), Medications (aspirin, anticoagulants, nonsteroidal anti-inflammatory drugs), Thrombocytopenia, Coagulation disorders

**→ Management**
The primary aim in the management of epistaxis is to stop the bleeding and monitor the vital parameters of the patient. The blood pressure of the patient is checked to detect hypertension as cause of the bleeding. A fall in blood pressure or a rapid thready pulse with cold clammy extremities detects circulatory collapse and hypovolaemic shock. If the patient is in shock the treatment is aimed at management of the shock.

**→ Primary First Aid Treatment**
The following first aid procedures should be performed
- Application of ice-pack on the nasal bridge - this helps in vasoconstriction.
- Pinching the nose – this helps by compressing the vessels on Little’s area and stops bleeding.

• Trotter’s procedure – useful in hypertensive epistaxis. The patient is asked to sit up, incline slightly forward with mouth open and breathe quietly. He is asked to spit out the blood and not to swallow it.

→ Local Management Of Active Epistaxis
• If the above does not work a visible bleeding site can be cauterised with silver nitrate, diathermy or electrocautery.
• Nasal packing is needed if there is still no success. For anterior bleeding a special nasal sponge or tampon (merocel) is inserted in the nose. As it absorbs blood it swells and the tight fit reduces flow.
• Otherwise a bismuth iodoform paraffin paste (BIPP) or 1 cm ribbon gauze impregnated with petroleum jelly (Vaseline) is placed carefully and systematically along the floor and then in the vault of the nose.
• Posterior bleeds require packing and a balloon catheter can be useful here. Either special dual balloon catheters (Epistat, Brighton) or Foley catheter with a large balloon (20-30ml) is used.
• Patients with posterior packs require admission to hospital. The elderly and those with heart disease or COPD need supplementary oxygen. Patient with profuse posterior nasal bleed may require endotracheal intubation to prevent aspiration.
• Rarely, it may be necessary to ligate or cauterize the sphenopalatine artery, or internal maxillary artery and ethmoid arteries or perform endovascular embolisation of the internal maxillary artery, when packing fails to control life-threatening haemorrhage. Ligation of the external carotid artery is a last resort.
• Submucous resection of the nasal septum may be required in some cases.
• Nasal packs are usually left for 2 or 3 days. Broad spectrum antibiotics are usually recommended. Complete blood count and coagulation profile is checked and venous access is needed for intravenous fluids / blood transfusion.

**“**
EPISTAXIS OR NASAL BLEEDING, HAS BEEN REPORTED TO OCCUR IN UP TO 60 PERCENT OF THE GENERAL POPULATION.
**“**

2009 Vol 24 No. 1 | 11
Balloons In The Nose

From the first balloon angioplasty using a Fogarty catheter in 1965, we have come a long way. Today balloon catheters are used to treat chronic sinusitis and to improve drainage of tears through minimally invasive procedures.

By Dr. Gauri Mankekar

IN THE EARLY 1960s, Thomas Fogarty, a surgeon invented the balloon embolectomy catheter. It comprised of a hollow tube about the width of a pencil, with a small inflatable balloon attached at the tip. The catheter was inserted through a minimal incision into a blood vessel and pressed through a blood clot. The balloon was then inflated, so it could displace the clot as it was extracted from the blood vessel. This invention has over the years developed numerous spin-off applications. The first balloon angioplasty was performed with a Fogarty catheter in 1965. Today we are using balloon catheters to dilate paranasal sinus openings to treat chronic sinusitis and in the nasolacrimal duct to improve drainage of tears through minimally invasive procedures.
The symptoms associated with chronic sinusitis can be overwhelming. If the symptoms are difficult to control with medications alone, then, minimally invasive endoscopic sinus surgery to open the sinus passage may be necessary. Conventionally the surgery uses rigid or powered instruments to cut and remove bones which are blocking the sinus ostia and therefore drainage of sinus mucus. Today, Balloon Sinusoplasty is an additional surgical option to widen the sinus ostia using flexible, soft catheters and balloon. It can be performed under minimal or general anesthesia. An endoscope is used to visualize the location of the sinus ostia. A small, flexible, sinus balloon catheter is introduced into the sinus ostia. When the sinus balloon is inflated, it gently restructures, opens the blockage and widens the walls of the passageway while maintaining the integrity of the sinus lining. It is a safe and effective surgery done entirely through the nose and is associated with less bleeding as compared to a conventional procedure. In addition the recovery of the patient is also faster.
Balloon Dacryoplasty

From the first balloon angioplasty using a Fogarty catheter in 1965, we have come a long way. Today balloon catheters are used to treat chronic sinusitis and to improve drainage of tears through minimally invasive procedures.

By Dr. Sunil Moreker

TEARS PRODUCED BY our lacrimal glands in the eye, drain through a system of lacrimal puncta, canaliculi, lacrimal sac, via the nasolacrimal duct into the nasal cavity. When this system is blocked following infection either in the eyes, lacrimal sac or nasolacrimal duct, there is excessive tearing. The blockage can be diagnosed clinically by sac syringing or radiologically with a dacryocystogram.

Conventionally, the ophthalmologists have performed external dacryocystectomy or dacryocystorhinostomy (DCR) with or without LASER for this blockage. With the advent of minimally invasive techniques, this procedure can also be performed endoscopically via the nose by ENT surgeons.

One of the options to treat the condition is to dilate the blocked nasolacrimal duct using a balloon catheter. First the lacrimal puncta and canaliculi are dilated, then the lacrimal system is probed and the presence of the probe in the nose is confirmed endoscopically to ensure that the probe is not creating a false passage. The balloon catheter is passed through the superior punctum, canaliculus and sac into the nasolacrimal duct to the nasal floor. Its presence in the nose is confirmed. The balloon is inflated with sterile water for 90 seconds and then deflated. It is re-inflated for another 60 seconds. The balloon is withdrawn to the nasolacrimal duct – lacrimal sac junction and inflated for sometime. Then the balloon is deflated and withdrawn completely. Fluorescein is used to irrigate the newly dilated lacrimal system and gently cleared with suction from the nose to confirm patency of the passage. In case symptoms recur, a stent could be used after balloon dilatation. Balloon dacryoplasty is superior to conventional probing as it does not traumatise the mucosa.
Don’t Ignore a Hoarse Voice

Abnormal changes in the voice are called hoarseness or dysphonia. It is important that the physician consider the different descriptions of voice quality when evaluating a patient’s complaint.

By Dr. Payal Chitranshi, Dr. Kashmira Chavan

As human beings, the voice has a unique role in our identity. Many seminal moments in our lives are characterized by its use and individual sounds. Countless artists have paid tribute to the sound of a lover’s hello and soft murmur or recounted the devastation of the harsh tones of rebuke and anger. Therefore, it may not be surprising that if you Google voice problems, you will in 0.27 seconds have 27,800,000 hits to browse through! The conditions range from simple voice strain and laryngitis to vocal cord lesions, spasmodic dysphonia, strokes and cancer.

Voice is not visible to our eyes during speech production but its absence or malfunction is obvious to us.
Abnormal changes in the voice are called hoarseness or dysphonia. Voice changes are related to disorders in the sound-producing parts (vocal cords or folds) of the voice box (larynx). While breathing, the vocal cords remain apart, when speaking or singing, they come together and as air leaves the lungs, they vibrate producing sound. Swelling or lumps on the vocal cords hinder vibration, altering voice quality, volume and pitch. Laryngeal function must be coordinated, efficient, and physiologically stable to produce a normal voice.

The patient’s complaint of hoarseness frequently represents something entirely different from the way the physician defines hoarseness, so it is important that the physician consider the different descriptions of voice quality when evaluating a patient’s complaint. Voice quality may be described as ‘breathy’, strained, rough, tremulous or weak. On questioning, the physician may discover that what the patient terms hoarseness is actually increased vocal effort or vocal fatigue. When vocal quality deteriorates and both anatomic and neurologic etiologic factors are excluded, a functional voice disorder should be suspected.

→ Evaluation of Hoarseness:
History - In the absence of an upper respiratory tract infection, any patient with hoarseness persisting for more than two weeks requires evaluation. The history can yield important information for narrowing the differential diagnosis.

- If there is a history of tobacco use, head and neck cancer is the first diagnosis to be considered, as hoarseness is often the only presenting symptom.
- Elucidate the patient’s voice use pattern - vocal personality type (amount and style of voice use), recent voice use (such as screaming at a baseball game) and vocal environment (where the patient uses his or her voice--such as talking while wearing ear-muffs on.
- A history of hearing loss in the patient or in a family member may be a

“ IN THE ABSENCE OF AN UPPER RESPIRATORY TRACT INFECTION, ANY PATIENT WITH HOARSENESS PERSISTING FOR MORE THAN TWO WEEKS REQUIRES EVALUATION. ”
contributing factor in voice abuse.

- A patient to consider in a special way is the professional voice user—anyone, from teachers to professional singers, whose occupation or livelihood depends on the normal use of the voice. These persons need earlier and more aggressive intervention and often require more specialized care.

- The nature and timing of the dysphonia
- Associated symptoms such as pain, dysphagia, cough or shortness of breath, symptoms of gastroesophageal reflux, associated sinonasal diseases and use of medications that dry the upper airway mucosa.

- Tobacco and ethanol use must be determined, as these products are irritating to the oral and laryngeal mucosa, and use of either is a risk factor for head and neck cancer.

- A history of other irritant exposure, particularly in the workplace, should be obtained.

- Neurologic disorders such as generalized dystonia or myasthenia gravis should be excluded.

- History of laryngeal trauma or neural injury resulting from prior neck surgery or trauma should be obtained.

- A history of temporomandibular joint disorders, cervical myalgia, or muscular fatigue may be suggestive of hyperfunction.

- Other medical disorders, including gastroesophageal reflux and laryngopharyngeal reflux as well as endocrinopathies such as hypothyroidism must be excluded.

- Any psychiatric history or recent history of psychosocial stressors should be elicited.

Clinical evaluation

Initial assessment of vocal quality for the range, ease, volume, and quality of the voice occurs during the patient interview. All patients must undergo a complete ear, nose, and throat examination to assess nasal airway patency, pharyngeal function, and velopharyngeal competency and evaluate for xerostomia and dental wear suggestive of bruxism. Hearing loss also may result in voice strain because the patient may speak with greater volume. Flexible fiberoptic laryngoscopy should be performed in addition to indirect laryngoscopy because it allows the examiner to observe the larynx in a more functional state.

Laryngeal videostroboscopic assessment also may be performed to more closely visualize the vocal folds’ vibratory patterns during selective speech tasks.

A functional voice disorder can be diagnosed only after a complete history, clinical examination, and voice assessment have been performed and no anatomic, neurologic or other organic cause can be identified.

Common causes of hoarseness

- Acute Laryngitis
  The most common cause is acute laryngitis—swelling of the vocal cords that occurs during a common cold, upper respiratory tract viral infection, or from voice strain. Serious injury to the vocal cords can result from strenuous voice use during an episode of acute laryngitis.
  - Voice Misuse
  - Speaking in noisy situations
• Excessive use / misuse
• Telephone use with the handset cradled to the shoulder
• Using inappropriate pitch (too high or too low) when speaking
• Not using amplification when public speaking

• **Benign Vocal Cord Lesions**
  Prolonged hoarseness can occur when you use your voice too much, or too loudly for extended periods of time. These habits can lead to nodules, polyps, and cysts. Vocal nodules (singers’ nodes) are callus-like growths of the vocal cords. Vocal cord polyps and cysts occur in those who misuse their voice, but can also occur in those who do not.

• **Hemorrhage**
  If you experience a sudden loss of voice following a yell or other strenuous vocal use, you may have developed a vocal cord hemorrhage. Vocal cord hemorrhage occurs when one of the blood vessels on the surface of the vocal cords ruptures and the soft tissues fill with blood. It is considered a vocal emergency and should be treated with absolute voice rest and examination by an otolaryngologist (ENT surgeon).

• **Gastroesophageal Reflux (GERD)**
  A common cause of hoarseness is gastroesophageal reflux, when stomach acid comes up the esophagus and irritates the vocal cords. Many patients with reflux-related changes of voice do not have heartburn. Usually, the voice is worse in the morning and improves during the day. These people may have a sensation of a lump or mucus in their throat and have an excessive desire to clear it.

• **Neurological Disorders**
  Hoarseness can also appear in those who have neurological diseases such as Parkinson’s or a stroke, or may be a symptom of spasmodic dysphonia, a rare neurological disorder that usually affects only the voice, but sometimes affects breathing. A paralyzed vocal cord may be the cause of a weak, breathy voice. If the hoarseness persists for more than three months and other causes have been ruled out, a neurologist may be helpful for diagnosis.

• **Laryngeal Cancer**
  Chronic hoarseness warrants evaluation by an otolaryngologist to rule out laryngeal cancer, especially in those with history of smoking. Laryngeal cancer is highly curable if diagnosed in its early stages.

• **Functional voice disorders**
  Functional voice disorders occur predominantly in women, are frequently transient, and commonly develop after an upper respiratory infection. Functional voice disorders can be misdiagnosed because they have varied presentations and multiple causative factors. Psychosocial issues are frequently present in patients with functional voice disorders.

“Remember to listen to your own voice because it might be telling you something.”
Many animals and even plant species communicate with each other. However, human language is unique in being a symbolic communication system that is learned instead of biologically inherited. Communication is a life skill that finds applications everywhere in relationships, school environments, and in job place. Communication includes speech (articulation, intonation, rate, intensity), language (phonetics, phonology, morphology, syntax, semantics, pragmatics), both receptive and expressive language (including reading and writing), and non-verbal communication such as facial expression and gesture. All communication disorders carry the potential to isolate individuals from their social and educational surroundings, timely intervention is therefore essential. Speech and language disorders refer to problems in

Speech Therapy

Timely speech therapy is necessary to rectify problems in communication and related areas such as oral motor function.

By Binu Thomas, Roohee Dhotre
communication and related areas such as oral motor function.

→ **Case I:**
40 year old female, a teacher by profession, came with a complaint of hoarseness of voice. Laryngoscopy showed bilateral vocal cord nodules with phonatory gap. Patient was referred for voice therapy. On examination patient had hoarse and breathy voice quality with reduced duration of phonation, tiring of voice, muscular tension in neck and shoulder region. Patient was advised voice rest for 2-3 weeks and certain relaxation exercises like deep breathing and neck rotation. She was also advised to follow certain do’s and don’ts of vocal hygiene like avoiding shouting, yelling, throat clearing, whispering, avoiding spicy and fried food and to have frequent fluid intake to avoid dehydration of the vocal cords. Laryngoscopy after three months was repeated which showed bilateral normal vocal cords. Patient also reported better voice quality, good breath control with no tiring of voice.

→ **Case II:**
30 year old male, a case of road accident was referred for speech language therapy after he was transferred to the wards from the ICU. On examination, patient had no orientation but was able to understand and follow commands with no verbal expressions. Speech and language therapy was started 10 days after accident. Initially therapy was focussed on language. Oro motor exercises were also advised to strengthen his speech musculature. Counselling of patient, his wife and relatives played a major role in therapy. Regular follow up was kept for 6 months. After 6 months of speech and language therapy drastic improvement was seen in the patient’s verbal expression. Patient was able to converse without any difficulty and resume his work.

Depending on the nature and severity of the disorder, common treatment may range from physical strengthening exercises, instructive or repetitive practice and drilling, to the use of audio visual aids and introduction of strategies to facilitate functional communication. Speech therapy may also include sign language and the use of picture symbols. Early diagnosis and treatment increases the chance for regaining or developing successful communication.

Speech and language therapy is required for patients having feeding and swallowing difficulties, learning difficulties, physical disabilities, language delay, hearing impairment, cleft palate, stammering, autism/social interaction difficulties, dyslexia and voice disorders, communication problems following stroke, head injury (traumatic brain injury), Parkinson’s disease, motor neuron disease, multiple sclerosis, Huntington’s disease, dementia, cancer of the head, neck and throat (including laryngectomy), voice disorders, mental health issues and transsexual women seeking voice therapy.
Psychological Effects of Snoring In Children

There is a very strong and proven connection in children with sleep related breathing disorders and behavioral problems. Snoring is always abnormal.

By Anupama Shah

Due to their unrefreshing sleep they often have difficulty in waking up in the morning. They appear irritable, appear dull and complain of fatigue, complain of headaches, nightmares and occasional bedwetting. Children with sleep difficulty and sleep apneas also show difficulty in concentration and sustaining focus. They may also appear restless, fidgety and hyperactive. Sometimes children with sleep disorders are mistakenly diagnosed with ADHD (attention deficit hyperactive disorder). Kids who don’t like to sleep resist sleep by becoming hyperactive. They start fighting with everybody, and then finally they crash.

Another consequence is the vicious cycle of sleep disorders and eating. If you don’t sleep well, the next day you’re hungrier for calories, especially fast calories such as fat and sugars. And if you’re tired, you don’t exercise. You become more obese, and obesity can even make the sleep apnea worse. In some cases, children with mood problems like depression and anxiety may also mimic some symptoms of sleep disturbances.

Usually a detailed clinical history may be enough to identify the cause of the sleep disorder. Comprehensive psychological assessments (like an IQ test, memory test) may be helpful to ascertain the extent of impairment and chart a treatment plan. It comprises of surgical, medical and supportive behavior therapy.

<table>
<thead>
<tr>
<th>Academic indicators</th>
<th>Behavioral indicators</th>
<th>Risk factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning problems</td>
<td>Hyperactivity</td>
<td>Obesity</td>
</tr>
<tr>
<td>Memory deficits</td>
<td>Inattention</td>
<td>Family history of apnea</td>
</tr>
<tr>
<td>Concentration problems</td>
<td>Impulsivity</td>
<td>Children with Down’s syndrome</td>
</tr>
<tr>
<td></td>
<td>Bedwetting</td>
<td>Frequent allergies</td>
</tr>
<tr>
<td></td>
<td>Headaches</td>
<td>History of smoking in parents</td>
</tr>
<tr>
<td></td>
<td>Irritability</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Difficulty falling asleep</td>
<td></td>
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<td></td>
<td>Nightmares</td>
<td></td>
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Snoring and obstructive sleep apnea is there a cure?

Snoring and obstructive sleep apnea not only creates social problems but has enormous medical significance. This is a curable condition and timely treatment can prevent further complications.

By Dr. Amitav Shukla

SLEEP AND WAKEFULNESS – the two states of being and two phases of brain activity are separated from one another physiologically and psychologically, but exert tremendous influence on each other. Between a third and a half of one’s life is spent in the sleep state.

→ **Definition**
Snoring is production of sound during sleep. Snoring noise is the result of soft tissue vibration that may occur at several levels of upper airway (nose, pharynx and larynx). Apnea is temporary cessation of breathing. Obstructive breathing disorder during sleep encompasses a series of events that include snoring without daytime sleepiness, snoring with daytime sleepiness, snoring with disruption of sleep, upper airway resistance syndromes, and obstructive sleep apnea (OSA).

Obstruction of upper airway during sleep is a common condition, affecting 2% of women and 4% of men above age 30. Most patients are habitual snorers who, with time, note deterioration in the quality of sleep and an increase in daytime fatigue and sleepiness. Because of the insidious manner in which these complaints progress, patients may wrongly attribute these symptoms to ageing process. The tendency to gain weight during middle age and the increase in airway compliance with ageing probably account for the evolution of this process from simple snoring to apnea. Frequently the patient will find himself or herself in a steadily declining cycle of events as the natural breathing problem worsens. The bed partner often has to retreat from the bedroom because of the loud snoring.

→ **Assessment**
Assessment of the patient with OSA is not confined to the upper airway; other parameters such as blood pressure, height and weight are critical. Numerous general conditions are evident on examination such as obesity, enlarged tongue, small chin, facial defects etc. It has been demonstrated that apnea increases not only nighttime blood pressure but daytime blood pressure too, probably by an increase in catecholamine levels.

Close association with the patient’s primary physician is important in managing a patient’s blood pressure and general medical conditions; it can also elucidate other causes of apnea such as alcohol consumption, recent weight gain and metabolic conditions. Coexisting conditions that mimic or exacerbate symptoms of apnea include depression, insomnia and use of sedative medications.

Collar size over 17 inches in male and in women a neck size greater than 15 inches increases the risk of OSA. Various formulae are used to combine height and weight for easier assessment of risk factors for OSA:

- Ideal body weight for height (males) = 48 kg + (2.8 × number of inches over 5 feet tall)
- Ideal body weight for height (females) = 45 kg + (2.5 × number of inches over 5 feet tall)

The nose serves as an inlet and outlet for airflow during sleep. An increase in nasal resistance may result in greater negative pressure in the pharynx, thus contributing to pharyngeal collapse. Deviation of the nose, with deviation of septum, narrowness of the external nose, nasal tip dip, nasal collapse aggravate nasal resistance and thus OSA. In the oral cavity, the position of the tongue and palate is important. Enlarged tongue and low-lying palate are contributing factors for OSA. Overhanging soft palate, enlarged uvula and enlarged tonsils cause airway obstruction and aggravates OSA.
Treatment of OSA should be considered after assessing the patient’s conditions and factors causing it.

- **Weight loss:** As obesity is one of the major risk factors, weight loss would improve or may even cure OSA. Unfortunately, weight loss is often difficult to achieve and sustain.

- **CPAP (continuous positive airway pressure):** CPAP therapy is non-invasive and is effective, both in adults and children. The biggest problem has been with compliance with use of this expensive machine, since the patient has to be hooked to it every night during sleep.

  In my personal experience most busy executives, businessmen and professionals who travel a lot, and even others find this exercise cumbersome and impractical. I feel the machine should be used by patients who are medically unfit for surgery, which is a permanent solution. Most patients if explained properly would opt for a permanent cure than a CPAP device.

- **Dental appliances**
  These are effective in patients with mild to moderate sleep apnea, especially in non-obese patients with small chin. Again, the main problem is compliance with the device.

- **Surgery**
  The most common soft-tissue surgical procedure for patients with OSA is uvulo-palato-pharyngoplasty. This procedure consists of removal of tonsils (if present), uvula, margin of soft palate, and excessive neck tissue, from inside. The success rate is good in experienced surgical hands. Operations for the jaw bone and facial bone can be advised according to defects.

### Treatment in children

Non-surgical treatment includes weight reduction for the overweight child, but this is rarely successful in children. CPAP, dental devices, tongue retainers have been tried but are not well tolerated by children. Surgical treatment includes removal of obstructing tissues. Tonsillo-adenoidectomy removal of tonsils on both side and adenoids is one of the most common surgeries done for OSA and is very effective. In children with excessive obstruction removal of soft palate and uvula also may be required. Septal deviation correction with or without removal of excessive nasal mass may also be required. Reduction of tongue size may be needed for children with relatively enlarged tongue if it is causing OSA.

Tracheostomy is reserved for the most severe cases of OSA and for children whose upper airway obstruction cannot be repaired in one operation.

### Conclusion

Snoring and obstructive sleep apnea are not only social problems but have enormous medical significance. One has to impress upon the patient that this is a curable condition and if treated in time will prevent complications. With better surgical tools and the introduction of lasers this procedure has become less traumatic and painful.

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**Check List**

**Obstruction of upper airway during sleep is a common condition, affecting 2% of women and 4% of men above age 30.**

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**Ideal body weight for height (males):**

\[
\text{Ideal body weight for height (males)} = 48 \text{ kg} + (2.8 \times \text{number of inches over 5 feet tall})
\]

**Ideal body weight for height (females):**

\[
\text{Ideal body weight for height (females)} = 45 \text{ kg} + (2.5 \times \text{number of inches over 5 feet tall})
\]
Approach To Oral Ulcers

Recurrent aphthous stomatitis is more common in women, in people under 40 years of age, in smokers and in people of high socioeconomic status.

By Dr. A.G. Tembe, Dr. Rohini Samant

ORAL ULCERS ARE a common complaint encountered by physicians, with causes ranging from benign aphthous stomatitis to sinister malignancy. For practical purposes, they can be classified as

- Acute multiple ulcers
- Recurrent/chronic oral multiple ulcers
- Chronic single ulcer

→ Acute multiple ulcers
These can be due to infections, drugs or rarely hematological malignancies

- Infections
Acute primary herpetic gingivo-stomatitis caused by HSV 1, oral vesicles due to chickenpox, Herpeszoster,
Acute multiple ulcers can be due to infections, drugs or rarely hematological malignancies.

- **Infections**
  - Acute necrotizing ulcerative gingivitis (ANUG)
    ANUG is usually associated with poor oral hygiene, smoking or emotional stress. It is caused by symbiosis between fusiform bacillus and spirochaetes and causes necrosis of the gingiva.

- **Hematologic diseases**
  - All forms of leukemia, but particularly acute myelomonocytic leukemia can produce gingival bleeding, ulcers and gingival enlargement. Oral ulcers are also feature of agranulocytosis

- **Drugs**
  - Ulcers and mucositis are often severe complications of chemotherapy and radiation therapy for malignancies.

- **Recurrent/chronic multiple ulcers**

- **Recurrent aphthous stomatitis**
  (also referred to as aphthae, or canker sores)
  The term should be used only in patients without systemic disease. The disease is characterized by recurring painful ulcers in the mouth that are round or ovoid and have inflammatory halos. The ulcers typically appear first in childhood. The lesions can be herpetiform (1-2 mm in diameter), minor (1-5 mm), or major (5-15 mm) and approximately 80% of patients affect nonkeratinized oral mucosa-buccal and labial mucosa, floor of mouth, soft palate, lateral and ventral tongue. They usually heal in 1-2 weeks but may recur monthly or several times a year.
  
  Recurrent aphthous stomatitis is more common in women, in people under 40 years of age, in smokers and in people of high socioeconomic status. Both hereditary and environmental causes of the disease have been suggested. Deficiencies of iron, vitamin B or folate have been implicated, but data are conflicting, and neither iron nor vitamin supplements reliably result in ulcer resolution. Management is symptomatic, consisting of protective barrier with orabase and topical steroids to give symptomatic relief. Systemic steroids may be needed in severe cases.

- **Recurrent intraoral herpes simplex**
  These lesions occur on keratinized epithelium- dorsal tongue, gingiva and hard palate, as small vesicles that rupture and coalesce. They usually heal spontaneously in about a week.

- **HIV infection**
  This should always be considered in any patient with recurrent oral ulcers, especially in the presence of intraoral infections like candidiasis, hairy leukoplakia etc.

- **Rheumatologic illnesses**
  1. **Behcet’s disease**
     It is a syndrome of unknown etiology characterized by recurrent oral and genital ulcers which are the most common and often the first manifestation. The ulcers are painful, shallow, round to oval with discrete borders, often occur in crops, persist for several weeks and heal without scarring. The duration helps to distinguish them from aphthous stomatitis which usually resolves within 2 weeks.

  2. **SLE**
     Oral ulcers constitute one of the ARA classification criteria of SLE. The ulcers are multiple and usually painless, but may occasionally be painful. Palatal erythema and/or ulceration is common in active lupus and may herald a disease flare.
3. Reiter’s disease (Reactive arthritis)
Painless aphthous ulcers are often a feature of acute reactive arthritis. They have an irregular border and are commonly located upon the palate or dorsum of the tongue.

4. Wegener’s granulomatosis (WG)
Oral ulcers can be seen in active WG. A rare but pathognomonic sign of WG is a red-purplish granular gingivitis, known as “strawberry” gums.

5. MAGIC (mouth and genital ulcers with inflamed cartilage) syndrome
This is a rare syndrome which combines features of Behcet’s syndrome with those of relapsing polychondritis.

6. Sweet’s syndrome (acute febrile neutrophilic dermatoses)
It is characterized by fever, red plaques on the skin, and aphthous- like ulcers in the mouth, genital or other mucosae and may be associated with other conditions like Inflammatory bowel disease, leukemia, etc.

• Gastrointestinal diseases
Like Crohn’s disease and celiac disease are often associated with aphthous like ulcer.

• Drugs
NSAIDS, beta-blockers, nicorandil, alendronate, etc are all known to cause recurrent oral ulcers and should be considered in the appropriate clinical setting.

• Nutritional disorders
Vitamin B deficiencies can cause oral ulceration, cheilosis and lingual ulcer. Plummer Vinson Syndrome is charaterised by iron deficiency, angular stomatitis, glossitis and dysphagia. Scurvy causes gum bleeding, ulcers and loosening of teeth.

• Disorders of mucosal fragility
Pemphigus, pemphigoid and lichen planus can produce painful mucosal ulcers that fail to heal within two weeks.

→ Chronic Ulcers
Malignancies like squamous cell carcinoma, chronic infections like tuberculosis, fungal infection, Wegener’s granulomatosis and midline granuloma can cause chronic non healing ulcer. There has to be a high index of suspicion followed by biopsy to enable timely diagnosis of these ulcers.

" ORAL ULCERS ARE A COMMON COMPLAINT ENCOUNTERED BY PHYSICIANS, WITH CAUSES RANGING FROM BENIGN APHTHOUS STomatitis TO SINISTER MALIGNANCY. "

Hinduja Hospital Newsletter
Oral Cancers

Oral cancer is frequently preceded by an identifiable premalignant lesion like leukoplakia, erythoplakia or submucosis fibrosis.

By Dr. Payal Chitranshi Bhattacharyya, Dr. Murad Lala

ORAL CANCER IS one of the most common cancers in India. Most of these are tobacco related cancers due to the lack of awareness about the harmful effects of tobacco. The cost of treatment of oral cancer is about Rs 3.5 lakhs per patient. This can be completely prevented by simple changes in lifestyle and regular screening.

Who’s at risk?
Doctors cannot always explain why one person develops oral cancer and another does not. However, this disease is not contagious. Research has shown that people with certain risk factors are more likely than others to develop oral cancer.

The following are the risk factors for oral cancer:
• Tobacco - Tobacco use accounts for most oral cancers. Smoking cigarettes, beedis, cigars, or pipes; chewing tobacco; and dipping snuff are all linked to oral cancer. Heavy smokers who use tobacco for a long time are at higher risk. The risk is even higher for tobacco users who consume alcohol.

• Alcohol - People who consume alcohol are more likely to develop oral cancer than people who don’t drink. The risk increases with the amount of alcohol that a person consumes as well as if the person smokes and consumes alcohol. In fact, three out of four oral cancers occur in people who use tobacco and/or alcohol.

• Sun - Cancer of the lip can be caused by exposure to the sun. Using a lotion or lip balm that has a sunscreen can reduce the risk. Wearing a hat with a brim can also block the sun’s harmful rays. The risk of cancer of the lip increases if the person also smokes.

• A personal history of head and neck cancer: People who have had head and neck cancer are at increased risk of developing another primary head and neck cancer. Smoking increases this risk.

• Studies have found a definite proof that infections with certain viruses (such as the human papilloma virus) are linked to oral cancer.

→ **Epidemiology**

While historically the majority of people developing oral cancers are over the age of 40 at the time of diagnosis, it does occur in younger individuals. There are links to young men and women who use conventional “smokeless” tobacco and chewing tobacco.

It has also been confirmed that in a younger age group, including those who have never used tobacco products, the cause could be HPV viral based. The human papilloma virus, particularly version 16, has now been shown to be sexually transmitted between partners, and is conclusively implicated in the increasing incidence of young non-smoking oral cancer patients. This is the same virus that is the causative agent in more than 90% of all cervical cancers. Based on recent peer reviewed published data, in the last few years, HPV may even be replacing tobacco as the primary causative agent in the initiation of the disease process in people under the age of 50.

From a gender perspective, for decades this has been a cancer which affected 6 men for every woman. That ratio has now become 2 men to each woman. This increase is due to lifestyle changes, primarily the increased number of women smokers over the last few decades. It is a cancer which occurs twice as often in the black population as in whites, and survival statistics for blacks over five years are also poorer at 33%, versus 55% for whites. Published statistics do not consider such socio-economic factors as income levels, education, availability of proper health care, and the increased use of both tobacco and alcohol by different ethnic groups.

### Risk Factors for Oral Cancer:

- Any sore or discolored area in the mouth, which does not heal within 14 days, needs to be looked at by a doctor/ENT surgeon.
- Quitting tobacco reduces the risk of oral cancer.
- The two most common approaches of detecting oral cancers are visual inspection and cytology.
- Treatment of oral cancers is ideally a multidisciplinary approach.
- Mass screening is the only viable choice to find oral cancer at precancerous or very early state high survival stages.

**ANNUAL EXAMINATION FOR ORAL CANCER SCREENING IS RECOMMENDED IN PATIENTS OLDER THAN 60 YEARS WITH RISK FACTORS SUCH AS SMOKING AND HEAVY ALCOHOL CONSUMPTION.**
populations, but all these factors are likely to play a role in who develops the disease. Annual examination for oral cancer screening is recommended in patients older than 60 years with risk factors such as smoking and heavy alcohol consumption.

→ **Clinical features**

One of the real dangers of this cancer is that in its early stages, it can go unnoticed and can be painless. The good news however is that your dentist or doctor can, in most cases, see or feel the precursor tissue changes or the actual cancer while it is still very small, or in its earliest stages. It may appear as a white or red patch of tissue in the mouth, or a small indurated ulcer which looks like a common canker sore. Other symptoms include a lump or mass which can be felt inside the mouth or neck, pain or difficulty in swallowing, speaking, or chewing, any wart like masses, hoarseness which lasts for a long time, or any numbness in the oral/facial region. Unilateral persistent ear ache can also be a warning sign.

Common areas for oral cancer to develop are the lips, the tongue and the floor of the mouth. Individuals chewing tobacco are likely to develop a tumour in the gingivo buccal sulcus, over the buccal mucosa or the gingiva covering the mandible. Cancers of the hard palate are uncommon, though not unknown. The base of the tongue at the back of the mouth, the oropharynx and on the pillars of the tonsils, the tonsillar crypt and the tonsil itself, are other sites where it is now more commonly found, particularly in young non smoking individuals. If your dentist or doctor decides that an area is suspicious, the only way to know for sure is to do a biopsy of the area.

→ **Cancer screening programs**

Oral cancer is an ideal cancer to identify early by screening. It is frequently preceded by an identifiable pre-malignant lesion like leukoplakia, erythroplakia or submucous fibrosis and the progression from dysplasia occurs over a period of 2. 5 - 8 years. The two most common approaches of detecting oral cancers are:

1. Visual inspection
2. Cytology.

Neither of these modalities has been shown to reduce mortality. However, educational programs directed toward reducing the use of tobacco and alcohol help in sustaining a healthier life. A regular dental examination in patients at high risk of oral cancer and an annual examination by physicians or a dentist to examine for oral cancer in patients older than 60 years with risk factors such as smoking and heavy drinking is recommended. Despite this, it has been found that only 14% of the population has ever had an oral cancer screening.

→ **Treatment**

Treatment of oral cancers is ideally a multidisciplinary approach involving the efforts of surgeons, radiation oncologists, chemotherapy oncologists, dental practitioners, nutritionists, and rehabilitation and restorative specialists. The actual curative treatment modalities are usually chemotherapy with concurrent radiation, sometimes combined with surgery.

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**ERRATA**

Two errors appeared in the previous issue of the medical newsletter 2008 volume 23, No. 1, “Organ Transplant”,

- The author for the article Stem Cell Transplant is Dr. Sachin Almel and not Dr. Asha Kapadia as incorrectly mentioned in the Contents.
- In the Hinduja News section under the heading Workshop, the name Mrs. Meher Vakeel is incorrectly spelt. It should read as Mrs. Meher Vakil.

The editor regrets these errors.
Both the oral cavity and oropharynx are essential in coordinating the complex functions of deglutition, phonation, and airway protection. Preserving this function is a difficult challenge when treating squamous cell carcinoma of this anatomical region. The treatment modalities available include surgery, external beam irradiation, brachytherapy and various combinations of the three. Considerable experience in the treatment of head and neck tumors with radiotherapy has demonstrated that a high tumor dose is required to achieve local control. Unfortunately, even with modern imaging and intensity modulated radiotherapy (IMRT) it is still difficult to spare

Brachytherapy in head and neck cancers

Brachytherapy in head and neck epithelial cancers has a high therapeutic index when compared to all the available high-end technologies

By Dr. Vivek Anand
adjacent normal tissues with external beam irradiation alone. Interstitial implant brachytherapy is an ideal solution if we want to deliver a high dose exclusively to the primary tumor volume thereby limiting the risks of severe xerostomia or trismus. The lack of practical knowledge limits the usage of brachytherapy in head and neck cancers. The most common sites in head and neck cancers to be treated by such implants are cancers of lip, floor of mouth, tongue and buccal mucosa. From the sixties, the Paris school led by Pierquin, Chassange and Dutreix laid the foundation of the Paris system of implantation. This reference system is predictive, reliable, consistent and clinically safe. With the development of linear accelerators in the fifties and sixties, the popularity of brachytherapy as a treatment modality began to decline. However, brachytherapy is undergoing resurgence in use due to the widespread availability of isotopes that offer more flexibility and fewer radio protective problems.

**Patient selection, pre-treatment work-up and patient care**

Interstitial brachytherapy can be used alone or in combination with external beam radiotherapy and/or surgery. In the case of brachytherapy alone the radioactive isotopes are to be implanted into the tumor tissue only and the indications are invariably limited. In combination with surgery, brachytherapy can be either given postoperatively or perioperatively to preserve the organ and thereby the desired function of the organ or for cosmetic purpose.

Computerized tomography (CT) and magnetic resonance imaging (MRI) are both useful. MRI is more sensitive for detecting muscle invasion, because of better tumor-to-muscle contrast and is more sensitive than CT for depicting invasion of the medullary space of the mandible and tumor spread along the inferior alveolar nerve. Fluorodeoxyglucose (FDG) Positron Emission Tomography (PET) can sometimes visualize tumor or nodal extension overlooked by CT and MRI.

**Treatment strategy**

The total duration of radiation therapy, including the external beam component and the brachytherapy boost, should be as short as reasonably achievable (within 8 weeks) to limit tumor cell repopulation. This means that the interval between external radiotherapy and brachytherapy should be as short as possible and less than 2 weeks.

**Implant technique**

Brachytherapy sources should always be implanted in an operating room equipped for anesthesia, with adequate lighting and suction facilities and the means to deal with extensive bleeding.

**Treatment monitoring**

During brachytherapy, meticulous patient monitoring is mandatory, in order to detect potential displacement of radioactive sources or catheters. Antibiotics may be useful.

**Catheter removal**

Implant catheters should be removed in the operating room, where management of hemorrhage and airway protection are achieved more effectively. An intravenous access is recommended and the presence of two persons is mandatory. In case of bleeding bimanual compression for ten minutes is usually effective for stopping arterial bleeding.

**Conclusion**

Brachytherapy in head and neck epithelial cancers has a high therapeutic index when compared to all the available high-end technologies in the treatment of Head and Neck cancers. When a limited recurrence or a new tumor develops in a previously irradiated territory, brachytherapy can deliver a curative dose with an acceptable risk of complication.
Ear, Nose, Throat in Systemic Diseases

An ENT symptom could be a forme fruste for an underlying systemic disease and hence merits a systemic approach.

By Dr. Simran Singh

A wide range of oto-laryngeal manifestations may occur as the presenting symptom or as a complication of a variety of systemic diseases. The systemic diseases may be a connective tissue disorder, granulomatous disease, hematological/oncological disease, nutritional disorder, metabolic disorder, neurological, or an infectious disease.

→ Rheumatoid Arthritis
This is an arthritis that usually affects the small and large joints in young women. The joint spaces typically involved in ENT include the cricoarytenoid joint, the ossicular joints, the temporomandibular joint, and the cervical spine. Larynx is the most commonly involved and presents as hoarseness of voice due to arthritis of the cricoarytenoid joint, laryngeal myositis, ischemic atrophy of the recurrent laryngeal nerves, and rheumatoid nodules of the vocal cords. Temporomandibular joint dysfunction may also be so severe that an anterior open bite deformity may exist. Involvement of the cervical spine may result in disruption of the joint space with possible atlanto-occipital subluxation during neck hyperextension and could cause vertigo. These patients may also have either conductive deafness secondary to synovitis of the ossicular joint or sensorineural from an autoimmune disease.

→ Polymyositis / Dematomyositis (PM/DMC)
Patients with PM/DMC may complain of difficulty in phonation and deglutition secondary to involvement of the tongue muscle, or may have nasal regurgitation from palatal and pharyngeal muscle wasting. Dysphagia is also common as there is frequently dysfunction with the superior constrictors, cricopharyngeus, and esophageal muscles.

→ Relapsing Polychondritis
This is an example of a diffuse inflammatory disease with involvement of cartilaginous structures. The cartilaginous structures of the ear and nose are commonly involved, with deformities related to tissue destruction (i.e. saddle nose). There frequently is a concomitant serous otitis media. There may also be laryngo-tracheal involvement with the possibility of later subglottic stenosis.

→ Sjogren's Syndrome
Primary Sjogren syndrome is characterised by recurrent parotitis, dry eyes and mouth. Due to the dry mouth they could have severe gingivitis, dental caries and periodontal disease, while corneal ulceration may be noted secondary to keratoconjunctivitis. In addition, there may be tongue atrophy/glossitis and extensive nasal crusting with epistaxis from the dry mucous membranes. These patients have a higher risk of developing non-Hodgkin's lymphoma and this should be considered especially in a patient with a rapidly enlarging parotid gland.

→ Amyloidosis
It is characterised by deposition of extracellular fibrillar protein in various tissues. In the head and neck region, the tongue is the most common site, with 12% of the patients having severe macroglossia causing change in speech, difficulty in swallowing and occasionally even breathing as the large tongue falls back in the supine position. The larynx may also be involved with the ventricle being the most common followed by false vocal cords.
cords, aryepiglottic folds, and the subglottic region.

→ **Sarcoidosis**
It is a multi-system disease, with the histological trademark of non-caseating granulomas. In the head and neck region, submandibular, submental, cervical adenopathy is seen frequently. As a distinct clinical entity, it is seen as facial nerve paralysis, uveitis, and bilateral parotid swelling. The supraglottic region is also frequently affected. In addition, the paranasal sinuses, nose, and nasopharynx is involved in 10 - 20% of the patients with polyloid mucosa, nodular masses, and significant crusting.

→ **Wegener’s Granulomatosis**
This is a systemic necrotizing granulomatous vasculitis with a predilection for the upper and lower respiratory tracts and renal system. The paranasal sinuses, nose are the most frequently affected (60-80%). Epistaxis, nasal septal granulomas, septal perforation, severe nasal crusting, granulomatous destruction of tissue in these areas and nasal deformities are typical. Though otological manifestations are uncommon, they range from a serous otitis media to a severe sensorineural hearing loss secondary to cochlear vasculitis. Diagnosis is based on clinical findings, biopsy of involved tissue showing necrotizing granulomas/vasculitis, and laboratory evidence of c- ANCA.

→ **Osler-Weber-Rendu**
*(Hereditary hemorrhagic telangiectasia)*
It is characterized by telangiectatic lesions (A – V malformations) in the gastrointestinal tract, the lungs, liver, head and neck regions. The nasal septum as well as the lateral nasal wall are frequently affected and often results in frequent, severe episodes of epistaxis. The lips and dorsum of the tongue are also involved.

→ **Acute Myelocytic Leukemia/Acute Lymphocytic Leukemia**
Leukemia can involve the ENT in many ways. Epistaxis may occur secondary to thrombocytopenia or due to a coagulopathy. These patients may present with epiglottitis, otomastoiditis, tympanic membrane thickening, hearing loss, vertigo, and facial nerve paralysis. Gingival hyperplasia secondary to myeloid infiltration is seen in AML.

→ **Hodgkin’s Lymphoma/Non-Hodgkin’s Lymphoma**
The major head and neck manifestation of Hodgkin’s lymphoma is the presence of painless lymphadenopathy in the cervical, supraclavicular, and mediastinal areas. Extranodal involvement occurs in 10% of cases includes infiltrates in tonsil (40%), nasopharynx (18%), paranasal sinuses/nose (13%), oral cavity (10%), salivary gland (9%), and base of tongue (8%).

→ **Plummer-Vinson’s Syndrome**
This has been referred to as sideropenic dysphagia. It is marked by dysphagia, hypopharyngeal and esophageal webs, weight loss, and iron deficiency anemia. It usually affects females in the 30-50 year old age group. The otolaryngological manifestations include atrophic glossitis, angular cheilitis, and hyperkeratotic lesions on the oral mucosa. The webs in the hypopharynx are typically between the cricoid and the thoracic esophagus. There is an increased incidence of carcinoma located proximal to the webs.
Gout is a disorder of uric acid metabolism, which typically results in an episodic, self-limited monoarticular arthritis. Involvement of the cricoarytenoid joint presents as dysphagia, pain, hoarseness, and possibly stridor/airway obstruction depending on possible fixation of the cord.

Thyroid Disorders
For the otolaryngologists, hypothyroid patients may present with hoarseness secondary to myxedema of the vocal cords, nasal obstruction secondary to edema of the nasal mucosa, alopecia which may affect the lateral third of the eyebrows, and a thickened tongue. Hyperthyroid patients may be referred to an ENT surgeon for endoscopic orbital decompression of exophthalmos. In addition patients may present with a midline neck swelling and if euthyroid then thyroidectomy is performed by the ENT surgeons.

Diabetes Mellitus
Poorly controlled diabetics are at greater risk of opportunistic type infections, secondary to granulocyte qualitative dysfunction. These patients may present with oral pharyngeal candidiasis. They may complain of vertigo/dizziness, either due to elevated blood sugar or due to autonomic dysfunction causing severe orthostatic hypotension. Sensorineurral hearing loss can occur secondary to diabetic microangiopathy. Of special importance is malignant (necrotizing) otitis externa caused by pseudomonas aeruginosa. The infection starts after only minor trauma to the external canal which later manifests as severe otalgia. Later stages of malignant otitis externa may present with cranial nerve palsies secondary to cranial base osteitis. Rarely diabetics may present with fungal sinusitis due to mucormycosis.

Multiple Sclerosis
Vertigo affects up to 50% of the patients and is the initial manifestation in 7-10% of these patients. Nystagmus, is a component of Charcot's triad in multiple sclerosis, along with scanning speech (dysarthria secondary to cerebellar involvement). Hearing loss may be found in up to 10% of the patients.

Myasthenia Gravis
These patients will demonstrate symptoms resulting from weakened facial, laryngeal, and pharyngeal muscles. Dysphagia may be a presenting complaint as the cricopharyngeus is frequently involved.

Infectious Diseases
Like HIV, tuberculosis, atypical mycobacteria, syphilis, leprosy, fungal infections with aspergillus and mucor can also present to the otolaryngologist with a multitude of ENT problems in the form of lymphadenopathy, mucocutaneous lesions, septal perforations, sinus involvement, serous otitis media and hearing loss.

1. Measles (Rubella)
Small, exanthematous lesions are noted on the buccal mucosa, referred to as Koplick’s spots. Maternal rubella can cause sensorineural hearing loss in children.

2. Infectious Mononucleosis
Exudative pharyngotonsillitis, cervical lymphadenopathy and hepatospleenomegaly are some of the common ENT manifestations.

3. Mumps
This is the most common viral disorder involving the salivary gland and is the most common cause of parotid gland swelling. It can cause complications like pancreatitis, orchitis, meningitis, and sudden deafness. The hearing loss is unilateral in 80% of the cases with more pronounced hearing loss at the higher frequencies and is permanent.

An ENT symptom could be a forme fruste for an underlying systemic disease and hence merits a systemic approach.
**Do you know?**

**When to test hearing?**
- Ideally all babies should undergo hearing screening at birth
- Adults be screened at least every decade through age 50 and at two-year intervals after that
- Those working / living in a noisy place should be tested every year.

**Are cell phones harmful?**
- No conclusive studies so far.
- Long term effects of electromagnetic radiation are being studied
- Volume levels consistently above 60% can damage hearing in the long term.

**Is it advisable to use ear buds?**
- No, they tend to push wax inside instead of bringing it out.

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**Our Ent Department**
By Dr. Amitav Shukla

The ENT Department at Hinduja Hospital has three Consultants, five residents of which three at any time are registered for DNB, four audiologists which together provides a comprehensive ENT service which is the widest offered in any private hospital in the city of Mumbai and in the country.

The ENT outpatients offers all facilities including an excellent audiology service, nasal endoscopy, laryngeal endoscopy with recording facilities, Carl Zeiss microscope for examination and treatment of ear conditions along with other routine ENT examination facilities. On an average over a 1000 to 1500 patients are seen in the Hinduja clinic and 300-400 patients are seen in free OPD per month.

A wide range of surgeries from routine ENT surgery to most sophisticated and complicated ones including Head & Neck surgery are carried out. On an average around 90-100 operations are done each month. We also offer one of the best facilities for Cochlear Implant surgery and post operative rehabilitation. We were one of the first hospitals in the country to start this facility.

We have an active teaching programme with three DNB students registered, one student under each Consultant. Part of the teaching programme also includes holding workshops e.g. endoscopic sinus surgery which attract candidates from the country and outside.

The ENT department at Hinduja Hospital offers the best and most comprehensive facilities available anywhere, under one roof, for ENT and Head and Neck surgery.

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**Success Story of Cochlear Implants**
By Dr. M.V.Kirtane

The major breakthrough in treatment of profound hearing loss, not amendable to even the most powerful hearing aids., is Cochlear Implants. A marvel of modern electronics, miniaturization and micro surgery, the cochlear implant replicates the function of the inner ear. Hinduja hospital has the proud distinction of being the institution with the largest number of cochlear implant surgeries in India. Nearly 600 cases have been successfully operated, many of these being helped by donations raised by the efforts of our ENT – Audiology team and unstinting support from the hospital administration. Many of these children who were born profoundly hearing impaired and therefore unable to speak are now attending normal school. Some have excelled in elocution competition, have learnt to play musical instruments, trained as dancers and showed scholastic performances on par with normal hearing peers. Cochlear implants have not only given them their hearing back, but transformed their lives and the lives of their families.

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**ENT Humour**

*New age hearing aid... It is mobile phone compatible!!*

Dr. Balakrishnan
Towards Community Service

ENT – Ophthalmology screening camp was organized at a Prabha Devi, on 13th March’09. Approximately 150 attended the same.

Activities organized at the camp
- Eye check up
- ENT screening
- Blood group
- Doctors consultation

Cataract – ENT screening camp was organized for general population on 5th April’ 2009. Approx 222 attended the same.

Activities organized at the camp
- Cataract Screening
- ENT screening
- ECG
- Doctors consultation

Live to Give Hope

In continuation with our passion to pursue the initiative taken to propagate ‘Live to Give Hope’ theme, we placed a series of messages at the bridge hoarding.

World Kidney Day – 12TH March 2009

On the occasion of World Kidney Day, 12th March 2009, we organised a “Free Kidney Screening Camp” for relatives of patients with BP and kidney problems. Approx 62 attended the same. A programme was also organized later in the day to celebrate this special day which was attended by 120 participants.

Are your kidneys as happy?
Take the test today.

World Kidney Day

out of tune?
It’s time for a kidney check up.

World Kidney Day - March 2009

Following tests were conducted:
- BP check
- BMI
- Urine Analysis
- S. Creatinine
- Fasting Blood Sugar

Standard Chartered Marathon

Hinduja Hospital doctors participated in the Standard Chartered Marathon which was held on the 18th January 2009. Our hospital doctors like Dr. F.N. Kapadia, Dr. Abhay Nene, Dr. Phulrenu Chauhan, & Dr. Milind Sankhe also participated. Dr. Kapadia and Dr. Chauhan ran for the organization “VOICE” that supports the education for the street children and Dr. Sankhe ran in support for the dystonia patients for the Aastha foundation.
Hinduja Hospital Introduces NAT Blood Testing

International Blood Safety Standards now available in Mumbai. Nucleic Acid Amplification Testing (NAT) is a new testing method to screen donated blood for safer blood supply than ever before. The technology can detect HIV, HCV & HBV infections in blood donors earlier than current screening tests. Shortened window period of infection detection will also reduce spread of HIV, Hepatitis B and C through transfusions. New system is introduced at a investment of Rs 50 lakhs. NAT Testing Services also available to outside blood banks, labs, hospitals and patients.

Short Stay Services

Widely known as “Day Surgery” is defined as “the admission of selected patients to hospital for a planned surgical procedure, who return home on the same day”. Now, almost, 120 procedures, which required more than a day of admission, can be done with only a few hours of stay.

Care@Home

We extend our services outdoors through our Homecare Services besides the existing emergency services. Homecare Services include Sample Collection, Nursing Care and Physiotherapy.

Each of these services has some unique characteristics and is delivered by professionals with specialized skills in those areas. These services could be of great help in those cases where:

- Doctor intervention is not required.
- Travel and transaction time cost is higher than the cost of Home Care visit charges.
- Patient is not in a condition to visit the hospital.
over India. Around 13 different types of cases were operated over 2 days.

- **Maharashtra Organ Donation Day** was held on 28/03/2009: The State Government and the Zonal Transplantation Coordination Centre (ZTCC) felicitated 15 donor families to mark Maharashtra Organ Donation Day on Saturday at Hinduja Hospital. The families were given mementos and certificates as a token of appreciation. Among the others, medical social workers and doctors from 7 other tertiary hospitals. Bhushan Gagrani, Secretary (medical education and drugs), Pravin Shinghare, Deputy Director of medical education and research, and Mohan Jadhav, the state’s appropriate authority for transplants and Dr. Vatsala Trivedi (ZTCC) were present on the occasion.

**Upcoming Cmes & Events:**
- 6th Infectious Disease Certificate Course – 6th September 2009
  For further CME and registration details log on to: http://www.hindujahospital.com/Registration/WebUI/Users/frmDisplayRecentEvents.aspx

**Awards & Achievements**
- Dr. Tester Ashavaid has been awarded the designation of Chartered Scientist (CSci) by the The Association for Clinical Biochemistry (London) in January 2009. This designation ensures high and improving standards across all scientific disciplines reflecting best practice in science and is set at a benchmark level throughout the science professions.
- The Department of Neurosurgery at Hinduja Hospital has been accredited as a World Federation of Neurosurgical society Education Centre for Skull Base Surgery under the Directorship of Dr. B.K.Misra from 2007 to 2009.
- Dr. Deepika Agarwal has won the gold medal for the DNB Respiratory exam for the year 2008.
- Dr. Ashwinikumar Khandekar has won the gold medal for the DNB Nephrology exam for the year 2008.
- Dr. Amit Mandot has won the gold medal for the DNB Gastroenterology exam for the year 2008.
- Dr. Kersi Chavda -
  - Currently the President of the Bombay Psychiatric Society
  - On panel of the Child & Adolescent Mental Health of the Indian Association of Private Psychiatry (IAPP)
  - On board the Academic Council of National Institute of Mental Health (NIMH)

**Research**
- The Annual Research Day was held on Saturday, 18th April 2009 at the 4th Floor Conference Hall. A total of 9 papers were presented. The prize winners for the best paper awards were:

- Ms. Kanchan Abjani 1st Prize Winner for her paper “Molecular Characterization of Extensively Drug Resistant Tuberculosis (XDR TB) Isolates”.
- Mr. Swarup Shah 2nd Prize Winner for his paper “Development of a Multilocus Assay for Candidate
Markers of Cardiovascular Disease in Indian Patients”.

- The First Research Methodology workshop for DNB students was conducted on the 7th March 2009 at the 4th Floor Conference Hall. The students were introduced to the basic research methodology by faculty members of Hinduja Hospital.

- The First Research Medical Statistics Workshop was conducted by 23rd May 2009 at the 4th Floor Conference Hall.

Mr. Swarup Shah and Dr. K.G. Nair

Hinduja Hospital celebrated its Annual Function, on the 5th of January, 2009 at Shannukhananda Hall. The message at this function was “Act Now, Jaago Re”

The inauguration of the function began with the Ganesh Vandana, to invoke blessings from Lord Ganesh setting the mood for the evening. The student nurses did Awakening: the Dawn of Peace, which was choreographed by the student nurses themselves. The musical conveyed a strong social message of unity in diversity. The staff nurses performed the musical skit Wake Up, a strong message for the women and the audience to awaken to the crimes committed towards women in today’s world. They portrayed the dilemma of a mother-to-be. She doesn’t know whether she wants girl or a boy. She thinks of dowry and molestation and that girls could reach heights of success. The theme skit-cum-musical piece Arise and Act had the backdrop of life in Mumbai especially during the recent terror attacks. It showed us what it was like to live in Mumbai especially during the recent terrorist attacks and that its spirit was undying. A cosmopolitan city of opportunity and accomplishment, where various communities lived together in harmony.

In a more serious vein, the CEO of Hinduja Hospital, Mr. Pramod Lele and Shri. A.P. Hinduja gave words of encouragement. Everyone silently pledged in their hearts to do their best and to devote themselves to patients.

The evening ended with more music, more singing. Everyone enjoyed and left the hall on a happy note with a smile on their faces.
WELCOME TO THE HH PARIWAR

Dr L. D. Dhami Consultant – Department of Plastic Surgery.

Dr L. D. Dhami is a practising Cosmetic, Plastic and Laser Surgeon in Mumbai since 1986. He received his undergraduate training, MBBS, M.S. and M.Ch degrees from Mumbai University. During his residency, he was based at L. T. Medical College, Sion (Mumbai) and later from 1985 to 1986 at St. Lawrence Hospital, Chepstow, UK. Along with training in Cosmetic (Aesthetic) Surgery, Dr. Dhami has also completed a specialised course in Microsurgery as a clinical Research Fellow at North Wick Park Hospital, London, UK. He is a senior life member of APSI since 1983 and a Founder President of IACLS (Indian Association Of Cosmetic Laser Surgeons). His areas of professional expertise include Breast Surgery, Liposuction, Abdominoplasty, Eyelid surgery, Facelift, Rhinoplasty. He was also the first plastic surgeon to utilise computer imaging to plan Rhinoplasty and Facial contouring surgery besides introducing Thread Lift – Aptos/Contour thread (Non Surgical face lift) surgery, subfacial Breast Augmentation and vertical Scar/ Medical Pedicle Reduction Mammoplasty procedures for the first time in the country.

Dr Anand Somaiya Consultant - Vascular Surgery, Department of Surgery

Dr. Somaiya is a MS in General Surgery (1978) from Armed Forces Medical College (AFMC), Pune. He was trained in Cardio Vascular Surgery under Dr Nemish A. Shah and Dr. T.P. Kulkarni, who are pioneers in Cardiac and Vascular surgery. He did a fellowship at the Texas Heart Institute under the direction of world renowned Cardio Vascular Surgeon, Dr Denton A. Coley. He was also trained with Dr. Donald Ross in London. Since 1980 he has been involved in treatment of diseases of heart and blood vessels. Dr Somaiya is a founder member of the Vascular Society of India. He was the president of the Vascular Society of India from 1997 to 1999.

Dr Ravindra H. Ramadwar Consultant - Paediatric Surgery, Department of Paediatrics

Dr Ravindra H. Ramadwar is a MS (1989) from Government Medical College, Nagpur and M Ch (1994) in Paediatric Surgery from Sion Hospital, Mumbai. Dr Ramadwar pursued Specialist Registrar Rotation in Paediatric Surgery at UK during 1995-99. With FRCS in Paediatric Surgery, he served as locum Consultant Paediatric surgeon at renowned hospitals in UK. Dr Ramadwar has also served as lecturer on Paediatric surgery, for 2 years, at KEM hospital.

25 YEARS OF SERVICE

To recognize employees who have served for 25 years or more with the view to carry forward the cherished values, experiences and commitment of the older employees an initiative called “Stars” was undertaken.