Why is my hand numb?
- Compressive nerve disorders
  in the upper limb
Why is my hand numb? Compressive nerve disorders in the upper limb

Dr Tan Ter Chyan, Consultant, Department of Hand & Reconstructive Microsurgery, University Orthopaedics, Hand & Reconstructive Microsurgery Cluster

There are many reasons why we experience numbness in our upper limbs. One of the most often asked question that we encounter is: “Am I having a stroke?”

We would have, sometimes in our lives, experienced the “pins and needles” in our upper or even lower limbs when we have slept in an awkward position. This is most likely from the interruption of blood supply to our affected limb. This goes away in a few minutes and does not bother us anymore.

However, if it does not go away and recurs frequently, and/or persists and affects our function and lifestyle, it will be a problem.

The 2 most common compressive nerve disorders in the upper limb are Carpal Tunnel Syndrome and Cubital Tunnel Syndrome. These involve the Median and Ulnar nerves respectively.

**Definition**

Compressive nerve disorders occurs when there is peripheral nerve dysfunction due to localised interference of microvascular function and structural changes in the nerve or adjacent tissues.

This can be chronic and the longer the duration and greater the pressure, the more severe the nerve damage.

The nerve is at risk when it is in direct contact with an unyielding structure, passing through an unyielding compartment, or if it is intimately related to a pathological structure, i.e. a malunited fracture. In addition to a direct point of contact leading to symptoms and signs, the nerve also glides and if there is decreased gliding and becomes more static, there can be entrapment. The normal median and ulnar nerves may glide 7.3 to 9.8mm respectively during full flexion and extension of the elbow. The nerve at the wrist has an even more pronounced excursion.

**Signs and Symptoms of Nerve compression**

These include Sensory and Motor dysfunction.

<table>
<thead>
<tr>
<th>Sensory Dysfunction: Constant or intermittent</th>
<th>Motor Dysfunction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>Clumsiness</td>
</tr>
<tr>
<td>Paraesthesia</td>
<td>Weakness</td>
</tr>
<tr>
<td>Dysesthesia</td>
<td>Wasting</td>
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<td>Anaesthesia</td>
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</table>

Wasting of the Abductor Pollicis Brevis

Sensory loss in the distribution of the Median Nerve (Left) and Ulnar Nerve (Right)
Carpal Tunnel Syndrome (CTS)

Carpal Tunnel Syndrome is the compression neuropathy of the median nerve at the wrist. It was first described by Sir James Paget in 1854, and popularised by George Phalen.

The clinical presentation of CTS include pins and needles, paresthesia in the distribution of the median nerve. There are associated night symptoms with waking and relief with the shaking of hands. In the local Chinese population there is the description of “sng” – a Hokkien dialect word.

In examination, the area of sensory can usually be demonstrated with the sparing of the ulnar innervated little finger sensory dermatome. In severe CTS, there will be wasting of the abductor pollicis brevis which forms the bulk of the thenar eminence.

The clinical tests employed include Phalen's test – which involves flexing or extending the affected hand and wrist for 60 seconds or more, illiciting numbness in the median nerve distribution. There are day-to-day activities that also mimic this test, and they include holding phones to the ear, holding and reading newspapers and driving with your hands in the 10 to 2 o'clock positions on the steering wheel.

Direct compression testing of the carpal tunnel will also elicit symptoms of CTS.

The vast majority of patients are between 40-60 years of age with the majority (70%) being women.

Management of CTS

The non surgical management of CTS include the use of wrist-based splints with or without activity modification like review of posture, exercise and work done. Oral medications are generally not effective except for oral steroids which showed an improvement of symptoms (Chang, Neurology 1998).

The deficiency of Vitamin B6 was postulated to help by Ellis (Am J Clin Neur 1979) to cause CTS. However, there has been no randomised study to prove or dispute the efficacy of Vitamin B6 is more effective than conservative measures.

The use of steroid injections into the carpal tunnel in CTS has shown that it may lead to excellent relief of symptoms. However, the relief is temporary for up to a month and much less at 18 months. The positive results of this procedure do, however, assist in confirming the diagnosis.
Outcomes of Carpal Tunnel Release

It is generally taken that surgery for carpal tunnel surgery, either endoscopic or open, has benefits. Papers give similar results, with DeStefano and colleagues (J Hand Surg Am 1997) having 40% of those with symptoms for more than 3 years before surgery having complete resolution of symptoms, while 70-80% of those who had less than 3 years of symptoms had complete resolution of symptoms. Most had complete symptom resolution within 6-12 months.

Cubital Tunnel Syndrome

Cubital Tunnel Syndrome (CuTS) occurs when there is compression of the ulnar nerve around the elbow. It occurs at the area of the elbow, where laymen call the “funny bone”.

Patients complain of numbness and tingling in the little and ulnar half of the ring finger. There is associated weakness of grip with possible hypersensitivity on palpation. They may have discomfort along the course of the ulnar nerve at the elbow, especially after direct palpation eliciting a positive Tinel’s sign. Sensory symptoms appear first as the sensory fascicles are more superficial than the motor ones.

Physical examination of the ulnar nerve may show weakness of the flexor digitorum profundus tendon of the little finger, weakness in abducting the fingers compared to the unaffected side, and a positive Froment’s sign (using the flexed thumb to crimp on a slipping sheet of paper instead of the side of the thumb) The ulnar nerve could also sublux at the elbow when the joint is flexed.

Further tests can be done for CuTS – these include performing an X-ray to visualise the elbow joint to exclude a healed malunited supracondylar fracture that could cause ulnar nerve compression. Electromyography and nerve conduction studies could help localise the point of compression and abnormal results generally are associated with a poorer surgical outcome.

McGowan (JBJSBr 1950) gave a very succinct classification of the problem.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
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<tbody>
<tr>
<td>0</td>
<td>Asymptomatic</td>
</tr>
<tr>
<td>1</td>
<td>Minimal lesions, altered sensation, no weakness</td>
</tr>
<tr>
<td>2</td>
<td>Intermediate lesions, altered sensation and weakness</td>
</tr>
<tr>
<td>3</td>
<td>Severe lesion, paralysis of ulnar intrinsic muscles, marked anaesthesia or hypoaeesthesia</td>
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</table>

Management of Cubital Tunnel Syndrome

The management of CuTS include non-surgical and surgical methods. Conservative treatment with therapy could well benefit a patient with minimal lesions and occasional symptoms of paraesthesia. “Wrap while you sleep” – where the elbow is wrapped to prevent inadvertent prolonged
flexion while asleep – can prevent the condition from getting worse, especially while the patient is asleep. Antiflexion splints also serve the same purpose providing a more rigid option. Overall activity modification preventing excessive flexion of the elbow will help.

Steroid injections have little affect and analgesia, i.e. NSAIDS act only as a pain relief.

Surgery for CuTS can be open or minimally invasive. Open surgery has two options of a simple decompression or an anterior transposition of the ulnar nerve at the elbow. Minimally invasive surgery is performed using an endoscope.

In cases where there is no subluxation and the nerve is in situ in its anatomical position, the minimally invasive method is now the preferred option, in view of the introduction of the cubital tunnel endoscopic release system. In addition to a smaller scar, the recuperation time is shortened significantly. Some patients do return to work within 24-48 hours post surgery.

The indication for surgery of the cubital tunnel syndrome is symptomatic ulnar neuropathy without neurological deficit that has failed to respond to adequate non-operative treatment.

Outcomes for Cubital Tunnel Surgery

Non-surgical treatment may provide long-term relief for patients who respond. In patients who do not improve with conservative treatment, surgery benefits 80% of patients. It is now believed that there is no significant difference if nerve transposition is performed (Nabhan, JHSAm 2006). In addition, nerve transposition has a higher complication rate.

Conclusion

Carpal Tunnel Syndrome and Cubital Tunnel Syndrome are two of the most common compressive neuropathies affecting the upper limb. Early detection, recognition of the signs and symptoms will assist the clinician in monitoring the problem. Timely surgery can halt progression of the condition and alleviate the discomfort.

Dr Tan Ter Chyan

Dr Tan Ter Chyan graduated from the Royal College of Surgeons in Ireland and obtained his specialist accreditation as a Hand Surgeon in 2005. In 2007, he completed a hand and peripheral nerve surgery fellowship at the Royal North Shore Hospital, Sydney, Australia. Dr Tan’s clinical interests include peripheral nerve surgery and the treatment tetraplegic and spastic upper limbs. He has assumed the portfolio of Program Director for the NUHS Hand Surgery Residency Programme, and will be intimately involved in the training of the next generation of hand surgeons.
Single Incision Laparoscopic Surgery in NUHS

Over the last two decades, conventional Minimal Access Surgery (MAS), or laparoscopic surgery, has established itself as the gold standard for almost all abdominal surgical procedures like cholecystectomy, adrenalectomy etc, as well as for surgery for gastro-esophageal reflux.

Laparoscopic surgery has effectively provided patients with less scarring, less trauma (both of access and intra-abdominal manipulation), less pain, shorter hospitalisation, and early return to family and work. The so-called “keyhole surgery” procedure provides these patient benefits at an acceptable cost.

But evolution in new technology continues to influence and push new advancements in surgery. In fact, in the last few years, a novel technique called “scar-less surgery” through a single incision laparoscopic approach, has become one of the emerging surgical techniques in different specialties. This technique is becoming popular among patients, due to better cosmesis and lesser post-operative pain.

The Department of Surgery at NUH has started to use and further develop the single incision laparoscopic surgery late in 2009. Since then, more than 300 procedures have been performed, mostly for common surgical diseases like gallbladder stones, hernias and appendix. More complex procedures like obesity surgery, partial gastric resection, liver resection and distal pancreatectomy are being increasingly performed using the single incision laparoscopic technique. We also use the single port device when a dual procedure has to be performed; and through a single incision, we are able to remove gallbladder stones and repair a hernia or remove the adrenal gland and gallstones. The patient leaves the hospital on the same day or within 23 hours from admission, with no or minimal scar and pain.

Equally, worldwide published experience has confirmed the safety and efficacy of single incision laparoscopic approach. Also, being in an academic environment, we are also conducting three randomised controlled trials to further analyse the outcome of this newer approach in patients with gallstones, inguinal hernia and appendicitis.

As one of the major Centres for MAS in the region, we are also providing training to other surgeons, both locally and regionally, to improve their skills in this newer approach.

To conclude, with MAS changing at a rapid pace, only longer follow-up and controlled randomised trials will tell if single incision laparoscopy is a meaningful and lasting technique, and a stepping stone towards a truly scar-less surgical intervention.

Diabetes follow up care at same rates at GPs

Instead of returning to NUH for their consultations, diabetic patients whose conditions are stable can now consult GPs near their home or workplace at the same rates under a two-year pilot programme between NUH and GP group, Frontier Healthcare.

About 100 patients referred by NUH doctors to designated Frontier clinics for co-management will continue to pay the same rates for their consultation, tests and medications. Frontier's family physicians will follow the same care components as practised by NUH specialists to ensure continuity of care.

At the end of the pilot programme, NUH will conduct an outcome study to assess the clinical results, as well as patient and GP satisfaction levels. If successful, we hope to roll out the programme to other disciplines like asthma, heart, rheumatology and psychological medicine.
Premature Ejaculation

**Dr Joe Lee, Department of Urology, University Surgical Cluster**

Premature Ejaculation (PE) is a common sexual dysfunction which affects up to 30% of men. It is defined as "ejaculation which, always or nearly always, occurs prior to or within about 1 minute of vaginal penetration; and inability to delay ejaculation on all or nearly all vaginal penetrations; with negative personal consequences, such as distress, bother, frustration and/or the avoidance of sexual intimacy" (Definition by The International Society for Sexual Medicine).

One may classify PE as primary (lifelong) or secondary (acquired). The former usually begins from the first sexual experience and continues throughout adulthood, while the latter has a more gradual onset following what is considered normal ejaculation experiences before the onset and time to ejaculation starts to become shorter. PE may co-exist with erectile dysfunction.

When evaluating PE, it is important to exclude underlying medical conditions associated with PE, such as endocrinopathy, autonomic neuropathy, Peyronie’s disease, urethritis and prostatitis. The psychological impact of this condition should also be assessed as it may be a source of social embarrassment and marital stress for the affected individual.

Although the exact pathophysiology of PE is not yet fully understood, a myriad of treatment options have been developed to increase intra-vaginal latency times. These modalities have been used with variable outcomes in selected patients. The traditional idea of using topical anesthetic agents to decrease penile hypersensitivity has been superseded by newer methods such as behavioral therapy using the “stop-start-squeeze” manoeuvres. Pharmacotherapy with phosphodiesterase type 5 inhibitors and daily selective serotonin reuptake inhibitors can also increase intra-vaginal latency times.

Dapoxetine, a short-acting SSRI which can be used on-demand orally, is one of the latest drug therapies available to manage PE. PE recurrence is common upon treatment cessation. As such, the treatment of PE is best individualised, and a combination of various modalities may be required for the best outcomes.

For more information, please contact:

**Urology Centre**
Kent Ridge Wing 2, Level 9

**Enquiry Line:** 6772 5087
**Fax:** 6776 5939
**Email:** urology_centre@nuhs.edu.sg

Vasectomy / Circumcision

**Dr Lincoln Tan, Department of Urology, University Surgical Cluster**

Circumcision is a common surgery indicated for phimosis, paraphimosis, frenulum breve, recurrent balanitis and for various social or religious reasons. Complications are uncommon when circumcisions are performed by trained surgeons. Patients should be advised to abstain from masturbation or intercourse for 4-6 weeks after surgery to allow the wound to heal.

Vasectomy is a safe form of contraception with a late failure rate of 0.05% (in comparison to tubal ligation with a failure rate of 0.5%), and is cheaper and less invasive than tubal ligation. Patients must be advised to continue practicing alternative forms of contraception until they have been given clearance by their surgeon that they are azospermic. There is no downtime and a patient can return to work almost immediately following vasectomy as pain is minimal.

Patients should be reassured that testosterone production in the testes is not affected by having a vasectomy. Hence, blood testosterone levels do not change after the vasectomy, and thus, there is no effect on the patient’s libido or erectile function.

Both procedures are most commonly done in Singapore under general or local anaesthesia, in a day surgery setting. The Urology Centre at NUH is offering both procedures under local anaesthesia in our outpatient facility. The advantages of this will be shorter waiting times for the procedure, and it costs less as compared to surgery in a Day Surgery Centre.

For more information, please contact:

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Medical Notes

Women’s Heart Health Clinic (WHHC) at the National University Heart Centre, Singapore

Cardiovascular disease (heart disease and stroke) is the No. 1 killer of women in Singapore, yet less than 10% of women in the Singapore Heart Foundation’s “Go Red for Women Heart Health Awareness Survey” in 2009 were aware of this important fact. Further, heart disease in women is not identical to that in men: some conditions affect women more than men (such as diastolic heart failure, apical ballooning syndrome or ‘broken heart syndrome’); even with the same disease, presenting symptoms may be less obvious in women or the underlying mechanisms may be different (predominant endothelial dysfunction in women); and some risk factors have greater impact in women (such as menopause).

Due to the lack of awareness of the importance of heart disease in women and the lack of resources for Singaporean women with heart disease, NUHCS offers, for the first time in Singapore, a unique programme dedicated to women with, and at risk of, heart disease.

Unlike regular cardiology referrals, the holistic approach of WHHC means that all first visit patients will be seen by a female cardiologist and also receive integrated care with a dietician, occupational therapist and physiotherapist.

The services that the Women’s Heart Health Programme offers include:

- **Risk Assessment**: To identify risk factors for heart disease and for other diseases common to women
- **Cardiac Diagnostic Evaluation**: An integrated approach tailored to unique features in women
- **Risk Management**: A comprehensive approach accounting for the fact that despite similar established risk factors in men and women, there are important differences in how strongly they affect women
- **Specialty Management**: Of cardiovascular conditions that affect women more than men
- **Education**: With specific emphasis on healthy cooking and eating, personalized exercise prescription, stress management, smoking cessation, blood pressure and lipid management

The programme will be a first in Singapore and modeled after similar well-established and successful clinical programmes in world-renowned centres, such as Brigham and Women’s Hospital Center for Cardiovascular Disease in Women, Mayo Clinic Women’s Heart Clinic and Vanderbilt Women’s Heart Center.

**NUH Sports Medicine Service**

With the rise in public awareness of the health benefits of physical activity, there are an increasing number of individuals participating in regular exercise and sports, many of whom are taking it on competitively. While the health benefits of regular physical activity is well recognised, sports participation also increases the risk of musculoskeletal injury.

To cater for the special needs of this active group, NUH’s Department of Orthopaedic Surgery has, therefore, extended its clinical service to include **sports medicine**, a specialised medical field. Our team of sports medicine professionals, which comprises of the sports physician, sports orthopedic surgeon and physiotherapist, is dedicated to support all competitive athletes and active individuals in achieving their sporting and fitness goals. We are strong advocates for safe sports through prevention and early management of injury.

The NUH sports medicine service is committed to achieving the best surgical outcome possible for our patients. We have a sports registry to track and document the surgical outcomes of our patients, and we also have a cartilage regeneration service employing stem cell technologies.
**Goitre**
A goiter is an enlarged thyroid. There are many descriptions of a goiter – solitary nodular, multinodular and diffuse. They are often brought to the attention of a patient when it presents with a swelling in the neck that moves with swallowing.

**Solitary Thyroid Nodule (STN)**
Nodules may be solid or cystic. The chance of such a nodule being malignant is 5-10%. There is a 5% chance that these STNs are toxic. Thus, when encountering a STN, initial investigations include an ultrasound, thyroid function screening and fine-needle aspirations cytology (FNAC).

**Multinodular Goitres (MNG)**
MNGs are often large and may cause swallowing and breathing difficulties. The chances of them being malignant are low. They are surgically removed for alleviation of the symptoms mentioned above and also for cosmesis purposes.

The surgery of choice is total thyroidectomy, as studies have shown that a subtotal thyroidectomy is associated with recurrences and the risk of morbidity in a re-thyroid surgery is high.

In recent years, there has been an increase of diagnosis MNGs due to more radiological investigations (CT scans and ultrasounds) for other pathologies. These groups of MNGs are not apparently visible, hence sub-clinical. They are essentially small nodules in an otherwise normal or slightly enlarged thyroid. They can pose a diagnostic challenge to the anxious patient.
**Graves Disease**

It is an autoimmune disease associated with hyperthyroidism where the stimulating autoantibodies are directed against the TSH receptors.

Treatment is tailored to the patient. The three modalities include antithyroid medication, radioactive iodine (RAI) or surgery.

Historically, a subtotal thyroidectomy was performed. However, this was again associated with a recurrent goiter and hyperthyroidism, thus a total thyroidectomy is the favoured choice. Advantages of surgery include removal of the goiter, reduction of the need for long term medication and patients not suitable for RAI.

Another postulated advantage of a total thyroidectomy is the removal of the source of the autoimmune disorder in the body and thus, halt the progression of eye pathologies associated with Graves disease.

**Thyroid Cancer**

In Singapore, it is the 9th most common cancer in women and approximately 700 new cases are diagnosed each year.

The most common type is papillary, followed by follicular, medullary and anaplastic.

Treatment of choice is a total thyroidectomy, followed by radioactive iodine ablation of remnant thyroid tissue. This will enable close monitoring with thyroglobulin for recurrence.

**Scarless-in-the-neck Endoscopic Thyroidecotmy (SET)**

80% of patients with goitres are women. There is often concern about the scar in the neck, which is not easily concealed by the clothing worn in the tropical climate. Furthermore, there is worry that the Asian skin has a higher propensity for keloid formation.

Nodules, which are less than 5 cm in diameter, and not malignant, can be removed via the axilla with endoscopic surgery, thus leaving the patient without a scar in the neck.
Thyroglossal Cyst
It presents as a mid-line neck lump that is usually painless, smooth and cystic. It is a cyst that can develop anywhere along a thyroglossal duct. It moves upwards with protrusion of the tongue. The treatment is surgical resection with removal of the midsection of the hyoid bone (sistrunk procedure).

Adrenal
The most common adrenal condition encountered in the GP practice is Conn’s syndrome. It is primary aldosteronism caused by hypersecretion of the mineralocorticoid aldosterone. It accounts for 1-2% of patients with hypertension. The treatment of choice is laparoscopic adrenalectomy.

Hyperparathyroidism
Hyperparathyroidism can be divided into primary, secondary and tertiary. The most common one is primary hyperparathyroidism whereby the hypercalcaemia is caused by inappropriate parathyroid hormone (PTH) release from the parathyroid glands, most often a primary adenoma.

These can be isolated via an ultrasound of the parathyroids and a nuclear sestamibi scan. Surgical excision of the adenoma can be done under local or general anaesthesia.

Dr Charles Tan
Dr Charles Tan is an Assistant Professor of Surgery at the NUS’ Yong Loo Lin School of Medicine. He received his surgical training at the National University Hospital (NUH). His interests are in thyroid, parathyroid, adrenal and hernia surgeries, with a special interest in the minimally invasive access and approach to it. He spent a year of fellowship on endocrine surgery at Royal North Shore Hospital, University of Sydney in 2007.

Dr Tan has a strong interest in undergraduate teaching and has been named the best tutor in the department for consecutive years. He has published in peer-reviewed scientific papers and has written a book for undergraduates and surgical trainees. Presently, his area of particular interest is in thyroid resections via the axilla.

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Introduction
Hemorrhoids are normal fibrovascular cushions in the submucosal space of the anal canal. These cushions contain a plexus of dilated arteriovenous channels that drain into the superior and inferior hemorrhoidal veins. They may be external or internal based upon whether they are below or above the dentate line.

The incidence of symptomatic hemorrhoidal disease necessitating specialist care is approximately 1 in 26, or 3.82%, or 10.4 million people in USA; extrapolating to Singapore, we can estimate that the local incidence is at least 16,000 patients per year. As many as 50% of people over the age of 50 will experience symptoms related to hemorrhoids at some point in time.

Hemorrhoids and Constipation
Many factors contribute to the development of symptomatic hemorrhoids – including constipation, prolonged straining, heredity, diarrhea, erect posture, heavy lifting, pregnancy, increased intra-abdominal pressure, irregular bowel habits, absence of valves within the hemorrhoidal veins, and aging.

With chronic constipation, the passage of hard stools produces a shear force on the connective tissue supporting the hemorrhoidal framework. The act of straining, either secondary to constipation, diarrhea and tenesmus, or prolonged attempts at defecation, plays a more important role than constipation alone. Straining causes the downward sliding and engorgement of the fibrovascular cushions in the anal canal. The prolapsed cushion has an impaired venous return, which results in dilation of the plexus and venous stasis. Inflammation occurs with erosion of the cushion's epithelium, resulting in bleeding.

Presenting Symptoms and Classifications
Hemorrhoids do not constitute disease unless they become symptomatic.

Internal hemorrhoids typically cause painless bleeding, prolapsed, mucous discharge, itching, or the feeling of incomplete evacuation; and the external hemorrhoids are associated with anal discomfort with thrombosis, itching and difficulty in maintaining perianal hygiene due to the presence of skin tags. At times, it can be difficult to establish whether symptoms are due to internal or external hemorrhoids, particularly when patients present with mixed disease.

A thorough history is important to identify individual with colorectal malignancy. One must also entertain the appropriate spectrum of differential diagnosis including colorectal tumors, abscess and fistula, fissures, inflammatory bowel disease, rectal prolapse, etc.

Proctoscopy is used to confirm the diagnosis. Colonoscopy is part of the assessment for young patients with risk factors for colorectal cancer and/or recalcitrant to treatment; or in those older than 50 years old in whom it serves the added purpose of screening for colorectal cancer.

The grading of internal hemorrhoids is useful for guiding treatment.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
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<tbody>
<tr>
<td>I</td>
<td>Hemorrhoids bulged into the anal canal and may produce painless bleeding.</td>
</tr>
<tr>
<td>II</td>
<td>Hemorrhoids prolapsed with straining but reduced spontaneously.</td>
</tr>
<tr>
<td>III</td>
<td>Hemorrhoids prolapsed spontaneously or with straining and required manual reduction.</td>
</tr>
<tr>
<td>IV</td>
<td>Hemorrhoids permanently prolapsed and irreducible.</td>
</tr>
</tbody>
</table>

Treatment of Hemorrhoidal Disease

i. Conservative Treatment
Conservative measures are successful for most patients. Dietary management of adequate fluid and fiber add moisture to the stool and subsequently decrease constipation and eliminate straining. A meta-analysis confirmed that fiber supplementation has a significant and consistent benefit in improving bleeding. Laxatives and stool softener may be added if necessary. Sitz bath is useful for relieving the irritation and pruritus; and maintaining anal hygiene.

Topical agents and suppositories that contain local anesthetics, corticosteroids, astringent, antiseptics and protectants may alleviate symptoms of pruritus and discomfort. However, the long term used of these treatments should be discouraged as side effects such as contact dermatitis, mucosal atrophy and ulceration may occur.

Lastly, simply instructing patients to avoid reading on the commode will frequently resolve the symptoms.

In Europe and locally, hydroxyethylrutoside, an oral micronised flavonoid compound (trade name Daflon, Les Laboratoires Servier, Gidy, France) is used. Studies found that it reduces acute and recurrent hemorrhoidal attacks, including those in pregnant women. It improves venous tone, microvascular permeability and lymphatic activity. This medication can be initiated at the outpatient primary care setting when a diagnosis of symptomatic hemorrhoids is made.

Figure 1. Thrombosed External Hemorrhoids  Figure 2. Prolapsed Internal Hemorrhoids
ii. Office-Based Procedures
Many of the minimally invasive techniques used to treat internal hemorrhoids are ambulatory procedures associated with minimal morbidity. The principles are to ablate the vessel, remove the excess hemorrhoidal tissue and fix the sliding hemorrhoidal tissue to the underlying anorectal muscular ring. Examples of these treatments include:

- Rubber Band Ligation
- Sclerotherapy
- Infrared Photocoagulation
- Electrocoagulation with bipolar, direct-current or monopolar coagulation
- Cryotherapy

Rubber band ligation is the established outpatient-based procedure of choice. It is effective, inexpensive, requires no anesthesia and rarely causes serious complications. Successful ligation results in thrombosis of the hemorrhoid, and the development of localised submucosal scarring and fixation. A meta-analysis found that surgical hemorrhoidectomy is more effective than band ligation for preventing recurrent symptoms, but at the expense of pain and complications. Patients treated with sclerotherapy or infrared coagulation were more likely to require further therapy than those treated with rubber-band ligation. Based upon these findings, rubber band ligation should be offered to those with symptomatic grade I to III internal hemorrhoids unresponsive to conservative measures.

Banding techniques appear to be effective in 65-85% of patients; the recurrence rate may be as high as 68% at 4 to 5 years of follow-up. These recurrences usually respond to repeat ligation and only 5-10% of such patients required hemorrhoidectomy.

Complication rate is low (0.5-0.8%) and include:

- severe pain from misapplication of the band below the dentate line, or from associated spasm
- delayed hemorrhage when the rubber band falls off, typically 7 to 10 days later
- thrombosis of the external hemorrhoids resulting in pain, and
- rare occasion of life threatening perineal sepsis

Sclerotherapy uses a sclerosing agent (5% sodium morrhuate, 5% quinine urea, 5% phenol or hypertonic saline) that is injected directly into the hemorrhoidal tissue. It is reserved for grade I and II internal hemorrhoids. The sclerosant causes an inflammatory reaction, sclerosis of the redundant submucosal tissue, and shrinkage and fixation of the associated hemorrhoidal tissue. Sclerotherapy is cheap and easy to perform and can be used in patients on anticoagulation.

However, it is less effective than rubber band ligation when used alone. Complications are rare and include mucosal ulceration and necrosis, local infection, abscess formation, prostatitis or portal pyaemia.

iii. Surgical Procedures
Patients with continued symptoms despite conservative or office-based procedure usually require surgical intervention. Surgical hemorrhoidectomy remains the most effective treatment for hemorrhoids overall with rare recurrences. Several techniques have been described and these include:

- Excisional Hemorrhoidectomy
- Stapled Hemorrhoidopexy
- Doppler-guided Hemorrhoidal Artery Ligation

Excisional hemorrhoidectomy removes internal and external hemorrhoidal tissue. It has stood the test of time being one of the most frequently performed and durable procedures. Some surgeons prefer to excise without mucosal closure (Milligan-Morgan or Open Hemorrhoidectomy) while others closed the incision with absorbable suture (Ferguson or Closed Hemorrhoidectomy). Several randomised trials have showed no significant difference between the two.

Post-operative pain remains the major obstacle in this operation. Many patients do not return to work for 2-4 weeks after surgery. Newer instruments such as Harmonic Scalpel® or LigaSure TM® show conflicting results in this arena and the additional costs, with the lack of superior results, preclude their recommendation for routine use.

Complications for hemorrhoidectomy include urinary retention (2-36%), bleeding (0.03-6%), infection (0.5-5.5%), anal stenosis (0-6%) and incontinence (2-12%). The pelvic nerves that innervate the bladder are in close proximity to the rectum and can be irritated during hemorrhoidectomy, causing urinary retention. Anal stenosis is usually a result of overzealous excision; and incontinence with sphincter defects can be due to excessive retraction and dilation.

Stapled hemorrhoidopexy uses an intraluminal circular stapling device to excise a circumferential column of mucosa and submucosa above the hemorrhoids and staples closed the defect. This effectively reduces and fixes the hemorrhoids in place. Systematic reviews conclude that stapled hemorrhoidopexy is less effective than conventional surgery, and is associated with a higher long-term risk of recurrence and prolapse. On the other hand, the stapled approach was associated with significantly less pain, a shorter inpatient stay, operative time, and time to return to normal activity. This technique has been well adopted by colorectal surgeons across the world.

Complication of stapled hemorrhoidopexy is rare. Reported cases include rectal perforation, staple line bleeding, retroperitoneal sepsis, anovaginal fistula, chronic pain and pelvic sepsis.
Doppler-guided hemorrhoidal artery ligation is a newer technique in the treatment armamentarium. This technique utilizes a specially-designed proctoscope housing a Doppler transducer. The device can identify hemorrhoidal arteries and allows selective ligation with sutures, hence stopping the hemorrhoidal bleeding. The prolapsed tissue can be ‘pexy’ upwards and be allowed to scar and fix to the underlying tissue.

A report on its use in 116 patients with internal hemorrhoids demonstrated improvement in pain, prolapse and bleeding in 96, 78, and 95 percent of patients, respectively. Recent literature demonstrates that this technique allows less pain at the cost of slightly higher recurrence when compared with operative excision.

Summary
Symptomatic hemorrhoidal disease is common and can be debilitating for some individuals. The cardinal features include bleeding, anal pruritus, prolapse, and pain. A broad differential diagnosis is necessary and total colonic evaluation should be performed as indicated. We recommend dietary management consisting of adequate fluid and fiber intake as the first-line management. Patients with persistent symptoms should be referred for office-based procedures such as rubber band ligation and sclerotherapy, and finally, surgery, for those who did not respond to non-operative management.

References


Figure 3 is adapted from http://www.dekalbsurgical.com/more_about_hemorrhoids.html

Dr Frances Lim

Dr Frances Lim joined the Division of Colorectal Surgery in 2010. She received her M.D. from the University of Calgary, Canada in 2003. She did her general surgery and colorectal surgery training in the United States. She is board-certified in general surgery by the American Board of Surgery; and in colorectal surgery by the American Board of Colon and Rectal Surgery.

Dr Lim’s biggest interest is in the field of minimally invasive colon and rectal cancer. She has experience in removing benign and early stage rectal tumors using the transanal endoscopic technique. Her other interest is in the area of postgraduate surgical training, for which she is the Program Director of the National University Health System’s (NUHS) Surgery in General Residency, and the Associate Program Director of NUHS’ General Surgery Residency.

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Hand Infections

Dr Alphonsus Chong, Consultant, Department of Hand & Reconstructive Microsurgery, University Orthopaedics, Hand & Reconstructive Microsurgery Cluster

Introduction
Hand infections are common because the hand is always exposed to the environment. As a result, even minor trauma can result in breaches of the skin defenses, allowing entry of bacteria and an infection. Systemic conditions like diabetes mellitus increase the risk and severity of such infections, because such patients often have impaired sensibility resulting in more injuries, and poor circulation causing diminished host response and healing.

Superficial Infections
Many of these infections are superficial, affecting the skin and subcutaneous layer of the skin. This includes cellulitis, subcutaneous abscesses, paronychia, and pulp space abscesses.

Cellulitis is usually caused by *Streptococcus pyogenes* or *Staphylococcus aureus*. It presents as a red patch of the affected area. There may be a history of penetrating trauma to the hand. If more severe, lymphangitis may be present, appearing as red streaks running up the limb. It is important to differentiate cellulitis from the less common, but life threatening, necrotizing fasciitis. The latter is rapidly progressing and in a patient who is generally sicker. Cellulitis is treated with antibiotics. No surgery is required.

Subcutaneous abscesses can occur in various parts of the hand. There is usually a history of penetrating trauma. *Staphylococcus aureus* is the most common organism involved. These abscesses need surgical drainage and debridement. If untreated, deeper structures like the flexor tendons may become involved.

Paronychia (Figure 1) and eponychia are infections affecting the nail fold. These usually follow minor trauma around the region. In early cases, where there is only mild redness and swelling, antibiotics might suffice. In established cases, surgical debridement is needed. The fingertip pulp is divided into compartments by fibrous septae. Following penetrating injury or contiguous spread from a subcutaneous or paronychia, the fingertip pulp space can become infected. Pulp space infections are extremely painful and the patient will have a swollen, red, and tender fingertip pulp. Surgical debridement along with antibiotics is necessary. *Staphylococcus aureus* is the most common organism.

Deep Infections

Flexor tenosynovitis (Figure 3) is a serious bacterial infection affecting the intra-synovial part of the flexor tendon. From the metacarpophalangeal joint to the about the level of the distal interphalangeal joint, the flexor tendons lie in a synovial sheath. Bacteria introduced into this sheath via penetration or from adjacent infection spreads very quickly to involve the whole sheath. If untreated, it can result in necrosis of the flexor tendons, osteomyelitis, and loss of the digit.

This condition is suspected in patients who present with finger pain and swelling following a penetrating injury to the palmar aspect of the finger. There are four signs which point to such an infection: Diffuse swelling of the digit, tenderness along the whole tendon sheath, a flexed posture of the digit, and pain on passive extension of the digit. Prompt surgical
intervention by debridement and washout of the synovial sheath, along with antibiotics is important to prevent complications.

Osteomyelitis and septic arthritis in the hand and wrist are uncommon. They usually present following penetrating injuries and open fractures. The commonest hematogenous cause of septic arthritis in the hand and wrist is *Neisseria gonorrhoeae*.

**Principles of treatment**

The principles of treatment are as follows:

**Early diagnosis**

This includes a clinical assessment that the condition is likely due to a bacterial infection, the anatomical area and tissue planes involved, and the likely micro-organisms. Beware of conditions that can mimic a bacterial infection, for example pyogenic granuloma, herpetic whitlow, and gout.

**Antibiotic treatment**

Initial empirical based on the likely organisms, this should be subsequently tailored based on gram-stain and culture results from specimens following surgery. If planning for surgery from the outset, antibiotics should be withheld until the culture specimen is taken.

**Appropriate surgery**

Often, surgical debridement and drainage is required. This complements antibiotic treatment and is often crucial to treat the infection.

**Early reconstruction and rehabilitation**

In the hand, because of the small tissue area, skin and soft tissue reconstruction is often required. Early rehabilitation is necessary to regain function of the hand.

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**Dr Alphonsus Chong**

Dr Alphonsus Chong completed his medical degree from the National University of Singapore. He obtained his specialist accreditation in Hand Surgery in 2004. Following this, he was awarded the A*STAR International Fellowship. For the fellowship, he spent two years at Stanford University doing translational research and clinical work.

His clinical interests include general hand and wrist surgery and reconstructive microsurgery. He has a particular interest in paediatric hand surgery, especially the reconstruction of congenital hand anomalies. In addition, he has an active interest in both clinical and translational research. His translation research area lies in flexor tendon and wound healing and techniques to improve outcome following tendon injuries. He is also the Clinical Director for the Department.

Dr Chong is also active in the development of Hand Surgery in Singapore and the region. He is currently Chair of the Specialist Training Committee for Hand Surgery in Singapore, and holds leadership positions in the Chapter of Hand Surgeons and Singapore Society for Hand Surgery. He has participated in several international trips to both teach hand surgery and provide humanitarian surgery.

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Introduction
The avulsion of the flexor digitorum profundus (FDP) tendon from its insertion at distal phalanx is a well described injury. Although it is not infrequent, it is often diagnosed late as it is easily missed on preliminary examination.

Etiology
The mechanism of injury is one of forced hyperextension of the distal interphalangeal joint (DIPJ) while the finger is actively flexing. The majority of these injuries occur in sports like American football, soccer, or rugby, when a player grabs an opponent’s jersey with the tip of the finger, while the opposing player pulls away. This injury is therefore commonly known as a ‘jersey’ finger. Although it has been reported in all digits, approximately 75% involve the ring finger.

Classification
Three types of avulsion of the insertion of flexor digitorum profundus tendon have been described based on the level of the proximal stump and the presence of a bony fragment (Fig. 1).

In type I, the FDP retracts into the palm or the proximal phalanx. In this type, both the vinculae to the FDP (vincula breve and vincula longae) have ruptured. In type II avulsion, the tendon is caught at the FDS chiasma at the level of the proximal interphalangeal joint (PIPJ) (A3 pulley). Only the vincula breve of the FDP is torn and the tendon is held at this level by the vincula longae, and occasionally, a small fleck of bone. In type III avulsion, the FDP carries with it a large fragment of bone that gets caught at the A4 pulley. The fragment prevents proximal migration of the tendon and both vinculae are preserved.

Diagnosis
The patient will have bruising and swelling at the location of the proximal stump with inability to actively flex the distal interphalangeal joint (DIPJ). Palpation of the flexor sheath may reveal an empty flexor sheath and the point of maximal tenderness represents the stump of the avulsed tendon. A palmar mass may be palpable in type I, whereas a flexion contracture may be seen in type II (due to increased bulk at the PIPJ). A good quality lateral radiograph may show a small fleck of bone at the PIPJ and help differentiate between type I and type II avulsion. An ultrasound or MRI examination can help in determining the location of the proximal stump.

Treatment
The treatment of FDP avulsion depends on the time elapsed since the injury and can be broadly categorised into acute and chronic injuries.

Acute injuries (up to 2 weeks):
The type of injury does not affect the management of acute injuries as the tendon can usually be advanced to the insertion and repaired. The repair can use either bone anchors or a pull-out suture in types I and II. Figure 2 depicts the result in a patient with a type III avulsion who undergone screw fixation of the avulsed bony fragment.

Figure 1: Classification of Jersey finger injuries

Figure 2: (A): Pre-operative x-ray, (B): Post-operative x-ray, (C): Functional result
Chronic injuries (> three weeks):

It may be difficult to do a direct repair of a Type I avulsion more than three weeks after the injury because of proximal myostatic contracture and collapse of the empty flexor sheath distally. In addition, it may be difficult to pass the oedematous tendon through the pulleys. The rupture of both vinculae makes the proximal tendon stump of type I avulsion relatively avascular compared to the other types. Primary repairs of types II and III avulsions have been reported up to 3 months after the injury.

The decision about what to do in a chronic setting depends on the nature of the patient’s complaints and has been summarised in Table 1. The aim of surgery is to improve grip strength. In the index and middle fingers, reconstruction of the FDP will give good results even if a good range of motion is not achieved at the DIPJ, because in these digits, strength can be achieved with limited range of motion. On the contrary, getting good grip strength in the little and ring fingers needs good active range of motion (AROM) at the DIPJ.

The reconstruction of the FDP in a patient with an intact FDS is a technically demanding procedure that should be undertaken cautiously. It is an appropriate procedure in the index and middle fingers of young, motivated individuals with good PROM and commitment to therapy. It is rarely indicated in the small finger and may be considered in the ring finger, if there is a specific reason, like the patient is a musician.

Table 1: Treatment options for chronic FDP avulsions

<table>
<thead>
<tr>
<th>Primary Complaint</th>
<th>Treatment Option</th>
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<tbody>
<tr>
<td>Finger stiffness</td>
<td>ROM exercises</td>
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<tr>
<td>Pain in palm</td>
<td>Excision of retracted stump</td>
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<tr>
<td>Weak pinch</td>
<td>- Arthrodesis of DIPJ</td>
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<tr>
<td></td>
<td>- Tenodesis of DIPJ</td>
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<tr>
<td>Instability at DIPJ</td>
<td>- Arthrodesis of DIPJ</td>
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<tr>
<td></td>
<td>- Tenodesis of DIPJ</td>
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<tr>
<td>Loss of dexterity</td>
<td>Consider staged reconstruction of FDP</td>
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<td></td>
<td>after full PROM is achieved</td>
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Lumps and Bumps in the Hand and Upper Extremity

Dr Mark Puhaindran, Consultant, Department of Hand and Reconstructive Microsurgery, University Orthopaedics, Hand & Reconstructive Microsurgery Cluster

Soft tissue tumors of the hand and upper extremity are common problems encountered in clinical practice. The vast majority are benign ganglia, giant cell tumors of tendon sheath and lipomas, with malignant tumors rarely encountered; most can be cured with simple excision with minimal sequelae.

Most patients with soft tissue tumors present with painless masses that may have been first noticed following trauma. Patients, even those with large malignant tumors, generally do not have any loss of function and are in good health; and patients may present only after a long period of time. Most benign lesions are small and located in the superficial tissue; hence it is recommended that soft tissue tumors larger than 5 cm, and deep seated tumors, be viewed with suspicion since these factors are associated with a higher risk of malignancy (≈10%). These patients should be referred to specialist centres for management.

Ganglions

Ganglions are the most common soft tissue tumors seen in the hand. These mucin-filled cysts are usually attached to adjacent tendon sheaths or joints, and can occur at any age, though they are more commonly seen between the 2nd to 4th decade. While they can arise from almost any joint within the hand and wrist, the most commonly encountered are dorsal wrist ganglions (~70%), followed by volar wrist ganglions (~20%), then ganglions arising from the flexor tendon sheaths and mucous cysts arising from the distal interphalangeal joints.

The exact cause for a ganglion is still unknown – the most commonly accepted theory is that a small injury allows the mucin to dissect through the joint capsule and ligament, producing the cyst. The mucin is prevented from returning to the joint because of the presence of a one-way valve. The diagnosis of a ganglion can be established on careful clinical
evaluation – a cystic, occasionally multi-lobulated mass, that transilluminates. X-rays are helpful in evaluating underlying joint changes while MRIs can both confirm the diagnosis as well as identify occult ganglions that may be symptomatic, but not clinically detectable.

There are many treatment options for ganglions – simple observation should be considered since up to 50% disappear without treatment, and this rate of spontaneous resolution is even higher in children. Surgery is indicated for patients with symptoms like pain or impaired function due to the ganglion (Figures 1 and 2).

**Other Soft Tissue Masses**

Giant cell tumors of tendon sheath, also known as pigmented villonodular synovitis (PVNS) are the second most common soft tissue tumors seen in the hand after ganglions. These tumors are normally, firm, nodular and non-tender. They can cause pressure erosions of the underlying bone or rarely actual bone invasion – features that can be detected on plain radiographs. These tumors also can surround the underlying tendons and even nerves and vessels (Figures 3 and 4), making surgical excision challenging. Other less commonly encountered soft tissue tumours include epidermal inclusion cysts, lipomas, nerve sheath tumours and vascular tumors.

**Malignant Tumors**

Malignant tumors in the hand and upper extremity are uncommon and can appear to be slow growing. Because of this, both patients and doctors may be misled into believing that the tumour is benign, leading to a delay in diagnosis.

Some examples of malignant tumours seen in the hand include skin tumours (squamous cell carcinomas (Figure 5) and melanomas) and soft tissue sarcomas. These patients should be managed in a centre with multi-disciplinary teams that can provide complete care for the cancer patient.

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**Dr Mark Puhaindran**

Dr Mark Puhaindran graduated from the National University of Singapore, and he obtained his specialist accreditation in Hand Surgery in 2007. Following this, he was awarded the Health Manpower Development (HMDP) award and spent 2 years doing a fellowship in musculoskeletal oncology at Memorial Sloan-Kettering Cancer Center in New York, USA.

His clinical interests include general hand and wrist surgery and musculoskeletal oncology. He has a particular interest in tumours that affect the upper extremity, especially microsurgical reconstruction of the extremity following tumour resection. In addition, he has an active interest in both clinical and translational research, and has written several papers and book chapters on upper extremity tumours. He is currently the Research Director for the Department of Hand and Reconstructive Microsurgery.

Dr Puhaindran is actively involved in undergraduate and postgraduate teaching, and has been an invited speaker at both local and regional conferences.

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Mdm Ng began having right parotid swelling and pain in Dec 2009. She initially consulted her family physician and the parotitis was treated with oral antibiotics. Shortly after completing the antibiotics, the right parotid swelling recurred and needed a repeat course of antibiotics. She was subsequently referred to NUH ENT Clinic for further management. CT scan of the parotid gland performed showed a 3 mm calculi in her right parotid duct.

Conventionally, she will require open surgery in the form of transoral removal through the Wharton’s duct or a parotidectomy. She was very concerned as she is a chronic renal failure patient on hemodialysis and is worried about having higher risks going through the surgery. So when the option of sialendoscopy to remove the calculi was given to her, she was very keen to undergo the particular procedure, which negates any open surgical approach.

Sialendoscopy is a procedure whereby small endoscopes are introduced into the major salivary ducts. It can be a diagnostic procedure as well as a therapeutic one. Many salivary gland infections or inflammations are a result of ductal calculi or ductal stenosis. Occasionally, they can be due to saliva stasis or mucous plugging. The glandular swelling is a response to the damming of salivary flow as a result and secondary inflammation and infection ensues. Few studies have shown that removal of the ductal pathology allow restoration of the gland function. Hence, we might be able to salvage the salivary glands by removing the obstructive pathology.

Obstructive Salivary Gland Diseases

The study of sialadenitis started since 1896, when Kuttner published his observation in two patients with chronic submandibular glands, which attracted the diagnosis of salivary gland malignancy, as the swelling caused by chronic inflammation led to the clinical appearance of malignancy. He later found that the inflammation was a result of sialolith in the gland of one of the patients.

In chronic sialadenitis, there seemed to be a cycle of obstruction by the sialoliths inciting an inflammatory reaction, resulting in glandular atrophy and fibrosis. The decreased secretory activity of glandular atrophy facilitates ascending infection and thus, sustaining the inflammation.

Sialolithiasis is more commonly seen in the submandibular gland due to its higher calcium content in its saliva and the lack of spontaneous secretory activity in absence of parasympathetic stimulation. Stenosis or stricture of the main duct can sometimes be seen in chronic sialadenitis and is likely secondary to chronic inflammation. The partial obstruction of the salivary flow caused by the stenosis is an important additional propagating factor in the persistence of sialadenitis and formation of sialoliths.

Sialendoscopy Service

NUH’s Department of Otolaryngology - Head & Neck Surgery introduced this service in 2010, led by Dr Loh Woei Shyang and A/Prof Thomas Loh. This came after getting hands-on training and experience in Geneva, Switzerland, as well as many hours of practice in animal lab on porcine specimens. So far, the procedure has been performed in 15 patients for various inflammatory salivary gland diseases.

The Sialendoscopes

The sialendoscopes are small caliber fiberoptic telescopes that can be introduced into the salivary ducts. There are 2 types of sialendoscope: the flexible sialendoscopy or the semi-rigid sialendoscopes (Fig 1). The diameter of endoscopes ranges from 0.9 mm to 2.7 mm and can be configured as a single-, double- or triple-lumen scopes. The additional lumen allow introduction of instruments for therapeutic work. Dormia basket, gasping forceps and even laser fibers can be passed into these endoscopes. In addition, there is a lumen for saline flush to dilate the salivary duct.

The Procedure

Fig 1. Semi-rigid Sialendoscope
The main indication for sialendoscopy is to aid in the evaluation of any unexplained major salivary gland swelling. Patients are usually counselled for the procedure, as well as informed regarding the likelihood of per-oral duct exploration and possible salivary gland excision. The complications of the procedure are sialadenitis and small possibility of oral cavity swelling, necessitating proper airway control.

The procedure can be done under local anaesthetics but general anaesthesia is preferred as there might be much manipulation involved. Intravenous antibiotics and steroids are given to minimise post-operative infection and edema. The procedure begins with sequential dilatation of the salivary duct papillae to allow the ease of introduction of the sialendoscope (Fig. 2). Once entered, the sialendoscope can be navigated through the branches of the salivary duct down to the second-generation ducts.

Upon diagnosis, the sialendoscope can then be used as a therapeutic tool. Small Dormia baskets can be deployed to remove small calculi (Fig 3 & Fig 4). Larger calculi (>3 mm) might require prior fragmentation using laser or extracorporeal lithotripsy. Balloon dilatation can be performed to widen stricture and salivary duct stent can be inserted to maintain patency. The added advantages of sialendoscopy are the ability to re-inspect the salivary duct for additional pathology or calculi (Fig 5).

Patients can usually be discharged on the same day.

**Case Discussion continue**

Mdm Ng underwent the procedure under general anaesthesia. A 3 mm calculi was seen in the mid-portion of right parotid duct. The calculi was removed with Dormium basket and inspection of the remaining duct was unremarkable. Mdm Ng recovered uneventfully from the procedure and was recommenced on normal diet immediate post-operatively. She was discharged the next day. Mdm Ng has not experienced any more parotitis since the procedure.

**References**


**Dr Loh Woei Shyang**

Dr Loh is a Senior Consultant in the Department of Otolaryngology-Head & Neck Surgery at the National University Hospital. He started his residency in Otolaryngology in Singapore in 1998 and was elected a Fellow of the Royal College of Surgeons of Edinburgh in Jan 2000. He went on to complete his residency in 2003 and continued to pursue a fellowship in Paediatric Otolaryngology in The Children’s Hospital in Denver, Colorado, USA. Dr Loh is trained in all aspects of general as well as paediatric otolaryngology. He also started sialendoscopy service in NUH in 2009.
Why did you choose to specialise in hand surgery? Tell us what would you be doing and where would you be now if you had not become a doctor?
When I graduated from Medical School, I wanted to be a surgeon. I had not heard of Hand Surgery at that time, and was initially interested in Plastic Surgery and Orthopaedics. As I progressed in my surgical training, I had an opportunity to do hand surgery as a posting, and found it contained elements of orthopaedics and plastic surgery, in addition to a unique aspect of function. That was how I decided to do hand surgery.

If I had not done medicine, I imagine I would have done computer science or something similar, as I have always been interested in computers.

You have particular interests in paediatric hand surgery, especially the reconstruction of congenital hand anomalies. What inspired you to specialise in these areas?
I enjoy treating children. I think having 4 children myself helps me understand and communicate with them better.

Congenital hand anomalies are often complex and challenging to reconstruct. That is part of the attraction; this field also allows a surgeon to improve the appearance and function of a limb. Congenital hand anomalies are very visible, and managing the psycho-social aspects for both the parents and child are important.

What are some of the common hand injuries you see? Anyway you think could have prevented them?
I also run a children’s clinic and see a lot of hand injuries in children. Most of them occur at home and in school. For home injuries, many of them are crush injuries due to doors and other heavy objects. For very young children, close supervision is necessary. Older children can be taught to be careful, and not to do things like put their fingers in the door hinge area, for example.

Increasingly, a large part of our population use “smart phones”, and spend long hours at the keyboard, both at work and play. Are finger, hand and wrist conditions (degenerative or not) inevitable in this time and age?
Yes, it is true that we are increasingly dependent on such devices. Even doctors now spend quite a bit of time using the computer for clinical care. When these activities are prolonged and frequent, it increases the risk of repetitive strain injuries. Frequent breaks will go a long way to prevent such problems.
Tell us more about your current clinical and research work?
I run the paediatric hand clinic in NUH, which sees both children's hand injuries and other conditions like congenital anomalies. In addition, I run adult hand clinics like the other hand surgeons in the department. Our department treats the hand and also performs microsurgical reconstruction of the lower limb, so the latter takes up a significant proportion of my clinical time. I also run a paediatric hand clinic in KKWCH once a week, as they do not have an in-house hand surgeon.

I have a strong interest in both clinical and translational type of research. Currently, I am working on ways to improve the results of flexor tendon injuries using biological adjuncts. I am also establishing clinical research databases in our department. I believe they will help yield exciting data for many years to come.

Could you share with us some memorable experiences that you have since becoming a hand surgeon?
I had treated a patient with multiple congenital hand and foot anomalies with reconstructive surgery. Post-operatively, the patient and parents were really happy with the results. She could now wear normal shoes and was no longer self-conscious of her hands. They even referred their friend to me.

Re-plantation of fingers and the hand is also very rewarding. I had one patient who got married a few weeks after multiple finger re-plantations. He was happy to have all his fingers reattached.

You have participated in several international trips to provide humanitarian surgery. What motivate you to go on such trips? Tell us more about the experiences, and your personal reflections.
I have been to China and Indonesia on such trips. One motivating factor is to provide residents in these places an opportunity to receive a level of care not available to them. Hand Surgery in particular, is not well developed in the places we visit. And the patients are poor. Without these trips, they would not receive appropriate care.

Sometimes, the medical care trip is coupled with some training/education for the surgeons there. This has a wider and longer lasting impact, as we transfer some knowledge and skills to the surgeons there. They can then apply to their patients in the future.

We understand that you are an avid photographer. Can you share more about this hobby? And how did you develop this particular interest?
I was introduced to photography by a good friend at age 16. My father bought me a film camera, and it went on from there. I still have that first Single Lens Reflex (SLR) camera in good working condition. Nowadays, I use a digital SLR.

I mainly take photographs of my family during special occasions and ordinary activities. My two older boys have started some competitive swimming, so I have developed an interest in sports photography.

Please tell us a bit about your family.
I have three boys, Alexander, Thomas and Jonathan, who are 8, 7 and 5 respectively. I also have a 2-year-old girl, Christine. My wife, Corrine, has a full time job managing all the kids and their activities.

* "I mainly take photographs of my family during special occasions and ordinary activities. My two older boys have started some competitive swimming, so I have developed an interest in sports photography."
## Upcoming Events

**NUH GP CME Programme 2011**
Please refer to our GPLC website for online registration.

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<th>Date</th>
<th>Clinical Specialty / Topic</th>
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<tbody>
<tr>
<td>10 Sep</td>
<td>Obstetrics &amp; Gynaecology (O&amp;G)</td>
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<tr>
<td></td>
<td><strong>O&amp;G GP Forum 2011: Meeting the Healthcare Needs of Women</strong></td>
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<tr>
<td>17 Sep</td>
<td>Anaesthesia</td>
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<td><strong>Complex Regional Pain Syndrome: A 360-degree Perspective</strong></td>
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<td>1 Oct</td>
<td>Orthopaedic Surgery</td>
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<td></td>
<td><strong>A Practical Step-Ladder Approach to Managing Pain: What Do Your Patients Go Through?</strong></td>
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<tr>
<td>8 Oct</td>
<td>Cardiology</td>
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<td><strong>Ischemic Heart Disease</strong></td>
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<tr>
<td>15 Oct</td>
<td>Orthopaedic Surgery</td>
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<tr>
<td></td>
<td><strong>The Outpatient Management of Osteoarthritis in the Knee</strong></td>
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* Event information listed is correct at time of print. While every attempt will be made to ensure that all events will take place as scheduled, the organisers reserve the rights to make appropriate changes should the need arises. Please refer to our events calendar at [www.nuh.com.sg/nuh_gplc/index/index.htm](http://www.nuh.com.sg/nuh_gplc/index/index.htm) for more updates and information.