Retropharyngeal Abscess in Diabetics: A Challenge

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1 Introduction

A retropharyngeal abscess (RPA) is one of the potentially serious deep space neck infections. It is an infection with abscess collection in the retropharyngeal space. It is due to suppuration of retropharyngeal lymph nodes within the retropharyngeal spaces of the neck (Afolabi *et al.* 2011). It is found to affect all age groups from neonates to elderly (Basel Al-Sabah *et al.* 2004, Ganglani 1996). Most publications reported a higher incidence among males than in females this seems to be a common consensus in the literature as it has been observed that males tends to respond to medical treatment better than the females (Basel Al-Sabah *et al.* 2004, Craig & Schunk 2003).

It is the most common deep neck infection in children (Afolabi *et al*. 2011, Ganglani 1996), but the literature is scanty, and most of the publications are case reports or small series with few retrospective and prospective study(Afolabi *et al.* 2011, Basel Al-Sabah 2004). Knowledge of the retropharyngeal space and its relationship to the other compartments is important in understanding the presentation, treatment, and complications of deep neck infections (Basel Al-Sabah *et al*. 2004). An abscess in this location is an immediate life-threatening emergency with the potential for airway compromise in all age groups. If the abscess compresses the larynx and upper trachea or ruptures due to pressure effect the symptoms of upper airway obstruction may develop either following the compression or aspiration of the purulent material (Afolabi *et al*. 2011). The invasion of contiguous structure, sepsis and other catastrophic complications may also result from this pathology (Choi *et al*. 1997). RPA can be of traumatic or non- traumatic origin. The traumatic is usually due to injury to the pharyngeal mucosa which may be from foreign body such as fish bone (Afolabi *et al*. 2011), or laryngeal mask (Eoin *et al*. 2009), animal bones, office pin, or any other material that breaches the mucosa into the submucous layer of the pharynx this can occur in all age group with the highest morbidity in the extreme of ages. The non-traumatic RPA is largely a disease of younger children, as a result of developmental aspects of the neck lymphatic system. Studies have shown that over 95% of the cases occurred in children under the age of 6. However, it is rather uncommon in adult, except in adult with diabetes, it may develop spontaneously especially in undocumented injury to the throat in patients with poorly controlled diabetics and those who are debilitated and the elderly (Okeowo 2004;, Cowan & Hibbert 1997;, Craig & Schunk 2003). Several studies have shown that diabetes mellitus is indeed a predisposing factor for deep neck infections and that the infections are also very severe leading to death in many instances (Mazita *et al.*, 2006; Glynn *et al*., 2007; Sapunar *et al*., 2008). Delay in diagnosing this condition results in high morbidity and mortality (Craig & Schunk 2003;, Ganglani & Edward 1995).

2 Anatomy of the Retropharyngeal Space and Pathogenesis of Retropharyngeal Abscess

The anatomy of the deep neck spaces is highly complex and can make precise localization of infections in this region difficult. Diagnosis of deep neck infections is difficult because they often are covered by a substantial amount of unaffected superficial soft tissue. Deep neck infections many times are difficult to palpate and to visualize externally (Brito-Mutunayagam *et al*. 2007). The use of antibiotics in this current age has reduced the incidence of infections of the fascial spaces of the head and neck, but these infections continue to occur. Atypical presentations are not uncommon in diabetic patients and immunocompromised patients. Fascia envelops the muscles, vessels, and viscera of the neck. Fascia planes form where

adjacent fascia condenses. Fascia spaces are potential spaces between these planes. The cervical fascia consists of two layers, the superficial or investing layer which is part of the deep cervical fascia (Figure 1 Axial slide of the neck). The superficial layer lies just below the skin, completely encircles the neck, and is continuous with fascia of the face and the superficial fascia of the muscles of the back. Within this layer lie the platysma muscles, external jugular vein, and lymph nodes. The deep fascia comprises three layers. The anterior layer envelops the trapezius, sternocleidomastoid, omohyoid, and strap muscles and the parotid and submandibular glands. The middle or visceral layer surrounds the pharynx, esophagus, larynx, trachea, and thyroid gland. The prevertebral layer covers the vertebral bodies and paraspinus muscles. Contributions from all three layers form the carotid sheath, which contains the vagus nerve, carotid artery, and internal jugular vein.

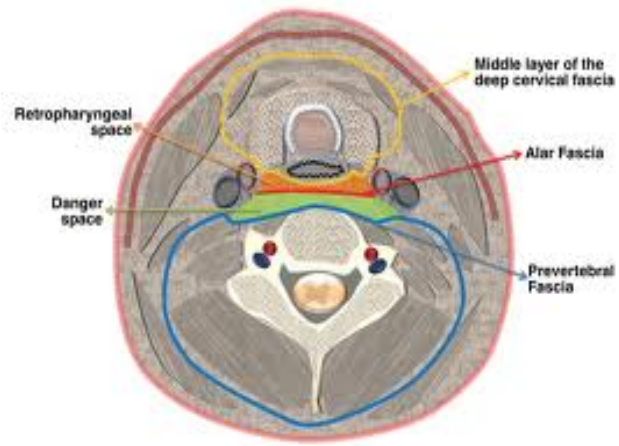

Figure 1: Section of the neck at about the level of the sixth cervical vertebra. Showing the arrangement of the fascia. Republished with permission from radiographics.rsna.org assessed on 24/12/2012.

Fascial spaces are potential avenues for the spread of infection. The spaces formed by fascia enveloping muscles offer some resistance of the spread of infection, whereas the spaces formed by fascia-enveloping viscera and vessels are associated with the most serious infections because they offer little resistance to this spread. The retropharyngeal space is located immediately posterior to the nasopharynx, oropharynx, hypopharynx, larynx and trachea (Cowan & Hibbert 1997;, Ganglani & Edward 1995). The visceral (that is, buccopharyngeal) fascia, which surrounds the pharynx, trachea, esophagus and thyroid, forms the anterior border of the retropharyngeal space. The retropharyngeal space is a potential space bounded anteriorly by pharyngeal muscle and its investing fascia, posteriorly by the alar layer of prevetebral fascia, superiorly by the skull base and inferiorly by the fusion of the anterior and posterior layers of fascia at the level of C7 it can also be said to lie between the visceral division of the middle layer of the deep cervical fascia around the pharyngeal constrictors and the alar division of the deep layer of deep cervical fascia posteriorly. It extends from the skull base to the tracheal bifurcation where the visceral and alar divisions fuse. It primarily contains retropharyngeal lymphatics (Gianoli *et al*., 1991). Laterally, the space is bounded by the carotid sheaths and parapharyngeal spaces (Ganglani & Edward 1995). This potential space contains no important structures except lymph nodes which normally regress by the age of 3-4yrs (Milan & Cumming 1996) while some authors report it regresses by age of five years (Cmejrek *et al*. 2002). It extends superiorly to the base of the skull and inferiorly to the mediastinum at the level of the

tracheal bifurcation. A midline raphae is present in this space making some infections appear unilateral. However without treatment infections can easily spread from one space to the adjacent space most especially the parapharyngeal space. The retropharyngeal space can become infected in three ways (Craig & Schunk 2003; Cowan & Hibbert 1997). Either infection spreads from a contiguous area affecting the retropharyngeal nodes or the space is inoculated directly secondary to a penetrating foreign body as we observed in our case in which a fish bone foreign body penetrated the retropharyngeal space as found intraoperatively. It may be through oropharyngeal injuries such as accidental lacerations, which are not uncommon in children who run and fall down after they have placed an object such as a toy, stick, pencil or toothbrush into their mouths (Craig & Schunk 2003; Wahbeh *et al*. 2002; Marom *et al*. 2007; Ologe & Afolabi 2007). There also are iatrogenic causes, which include instrumentation with laryngoscopy, endotracheal intubation, surgery, endoscopy, feeding tube placement and dental injection procedures (Marra & Hotaling 1996), which inoculate these organisms directly into the retropharyngeal space. Other common sources of infection in the retropharyngeal space are the nose, adenoids, nasopharynx, and sinuses. Infections of this space may drain into the prevertebral space and follow that space into the chest. Mediastinitis and empyema may ensue. Abscess in the space may push forward, occluding the airway at the level of the pharynx. It may appear as anterior displacement of one or both sides of the posterior pharyngeal wall because of involvement of lymph nodes, which are distributed lateral to the midline fascial raphe.

3 Bacteriology and Underlying Diseases

Various organism have been isolated from the retropharyngeal abscess however report from Taiwan in 2001 reported that the commonest pathogens were Streptococcus Viridans and Staphylococcus aureus, others were Klebsiella pneumoniae, Escherichia coli, Enterobacter spp., Prevotella spp., Salmonella spp. and Methicillin resistant staphylococcus aureus (MRSA) have been described (Tan *et al.,* 2001). Veillonella spp. and Morganella have also been isolated. Mixed infections were found in 46 percent of patients that was studied. It has been suggested that, at least in some paediatric patients, recent EBV infection may have an aetiological role in RPA formation (Tan *et al*., 2001).

Another recent study conducted in Iran published in 2010 showed bacterial cultures for 40 cases of deep neck space retropharyngeal abscess and *Positive coagulase staph* was the most significant pathogen (31 out of 40, 77.5%), *Negative coagulase staph* was in second rank (7 cases, 17.5%) and then *β-hemolytic streptococcus* as well as *Entrobacter* (each one is 2.5%), *α-hemolytic streptococcus* (7.5%), *Klebsiella* and *Non hemolytic streptococcus* (each 5%) and finally *Pseudomonas* (2.5%). Forty five cases out of 147 ones (30.61%) had underlying diseases including diabetes (28 cases) (19%), immunodeficiency following the consumption of immunosuppressive medicines (10 cases) (6.8%), drug addiction (7 cases) (4.8%) (Hassan et al 2010). Klebsiella pneumonia has been consistently found in diabetic patients with deep neck abscesses; a retrospective study carried out in Singapore found that 41.2% of patients with deep neck abscesses had diabetes mellitus and 50% of their cultures were positive for Klebsiella pneumonia (Lee & Kanagalingam, 2011). Another retrospective study from Taiwan revealed Klebsiella pneumonia as the most common causative agent among diabetics while Streptococcus viridians was responsible in most non-diabetic patients (Huang *et al*., 2005). Diabetes mellitus also predisposes to infections with not so common organisms; Citrobacter freundii and Streptococcus milleri have been isolated from diabetics with deep neck abscesses (Aderdour *et al*., 2008; Hasegawa *et al*., 2011). Penicillin-resistant *Staphylococcus pneumoniae* has been described as a causative organism in paediatric cases

(Parhiscar & Har-El 2001). Blastomycosis as a cause of RPA has also been described (Kobayashi 2002). Tuberculous abscesses are traditionally associated with cervical spine disease in adults, but have also been described in young children in the absence of neck disease (Hansen & Maani 2004).

4 Case Presentation

A 16-month-old Yoruba girl was referred from a peripheral hospital to the ear, nose and throat (ENT) unit of our hospital with a one-week history of fever, a six-day history of cough and a five-day history of neck swelling. Her fever was high grade with bouts of cough, and she had no history of contact with a person with chronic cough, no associated weight loss and no post-tussive vomiting. Her mother noticed neck swelling five days before presentation which was progressive and painful, with associated limited neck movement. The patient refused to eat, expectorated a thick tenacious secretion, and had episodes of irritability and excessive crying. The child had a previous history of left ear discharge which had resolved, and there was no history of hearing impairment or nasal symptoms. About three days prior to presentation, the child was noticed to be breathless, for which she was treated at a private hospital as a case of pneumonia and was placed on an antitussive and antibiotics. The patient's medical history and family and social history, as well as the review of systems, were not remarkable. An examination of the throat revealed poor oral hygiene; foul-smelling, thick, tenacious, straw colored secretion from the oral cavity and oropharynx; and a bulging posterior pharyngeal wall. The patient's neck showed a diffuse swelling which was tender. The ear, nose, chest and abdominal examinations were essentially normal. An assessment of retropharyngeal abscess was made to rule out parapharyngeal abscess as a differential diagnosis. Investigations revealed that the packed cell volume was 41%, and the electrolyte and urea examinations showed the following concentrations: sodium, 142 mM/L; potassium, 3.7 mM/L; urea 6.5 mM/L; and creatinine, 101 mM/L. Retroviral screening was done and was found to be negative for both HIV I and II.

X-rays of the soft neck tissue revealed widening of the prevertebral space containing areas of opacity and lucency extending from the base of the skull to the level of the seventh cervical spine (C7), which at the level of the second cervical vertebra (C2) was about 22 mm, with the laryngeal air column almost obliterated and anterior displacement of the airway and straightening of the cervical spine (Figure 2). There was lateral displacement of the trachea to the left from the anteroposterior view (Figure 3). The patient was resuscitated with intravenous fluid and antibiotics and was taken for examination under anesthesia and drainage of the abscess. The patient was placed in the anti-Trendelenburg position while under general anesthesia. Intubation was difficult but was finally achieved using a size 2.5 mm endotracheal tube inserted by an experienced anesthetist, and light packing with wet gauze was placed around the endotracheal tube. Anesthesia was induced with halothane in oxygen, and the trachea was secured with 1 mg/kg suxamethonium. Anesthesia was maintained with 66% nitrous oxide in oxygen and 0.5% to 1% halothane in oxygen, while muscle paralysis was induced with 0.1 mg/kg pancuronium. Analgesia was ensured with 2 µg/kg fentanyl. A Boyle-Davis mouth gag was introduced gently to expose the oral cavity and oropharynx, a cruciate incision was made using a size 11 surgical blade and a surgical probe was introduced to break down all loculi. About 30 to 40 mL of foul-smelling, purulent discharge was drained with the extrusion of a fish bone remnant from the abscess cavity. The culture revealed a growth of mixed organisms: Staphylococcus aureus, Klebsiella pneumoniae and anaerobic streptococci. Prior to extubation, residual neuromuscular block was antagonized with a combination of 0.04 mg/kg neostigmine and 0.02 mg/kg atropine. The patient was extubated but suddenly developed laryngeal spasm. Manual ventila-

tion with a face mask was difficult as the patient's pulse oximetry was less than 80%. Anesthesia was deepened with halothane, and the patient's trachea was resecured with 1 mg/kg suxamethonium. The patient was ventilated manually with 100% oxygen in the improvised recovery room on account of poor respiratory function for about 8 to 10 hours, after which she was transferred to the postoperative ward, where her condition was satisfactory. The patient was maintained on intravenous antibiotics, analgesics and anti-inflammatory agents. The patient was discharged to home on the fifth day postoperatively.

5 Types of Retropharyngeal Abscess

5.1 Acute

This can be acute retropharyngeal or chronic retropharyngeal abscess. Acute Retropharyngeal space infections usually occur primarily as a sequela of upper respiratory tract infections that drain into the retropharyngeal lymph nodes. It may be a result of suppuration of retropharyngeal lymph nodes secondary to infection in the adenoids, nasopharynx, posterior nasal sinuses or nasal cavity (Afoabi *et al*., 2011; Cowan & Hibbert 1997; Ganglani & Edward 1995). In adults, it may result from foreign bodies or trauma from penetrating injury of posterior pharyngeal wall or cervical oesophagus. Rarely, pus from acute mastoiditis tracks along the undersurface of petrous bone to present as retropharyngeal abscess. The disease occurs primarily in young children. There is often a history of a recent upper respiratory tract infection. The acute is commoner in children although it also occurs in adults.

5.2 Chronic

The chronic retropharyngeal abscess is commoner in adults, It is tubercular in nature and it may arise from caries of cervical spine or tuberculous infection of retropharyngeal lymph nodes secondary to tuberculosis of deep cervical nodes. The former presents centrally behind the prevertebral fascia while the latter is limited to one side of midline as in true retropharyngeal abscess behind the buccopharyngeal fascia. Retropharyngeal tuberculous abscess is a rare presentation of the disease even in the presence of extensive pulmonary tuberculosis (Melchor *et al*., 1993). Sometimes, retropharyngeal tuberculous abscess causing stridor and threatening respiratory obstruction may be the only manifestation (Carroll *et al*., 1989). Tuberculous retropharyngeal abscess in adults is usually secondary to tuberculous involvement of cervical spine (Mathur & Bais 1997). The probable route of spread of tuberculosis to retropharyngeal space is via the lymphatic to a persistent retropharyngeal lymph node. Rarely, the abscess may be due to hemotogenous spread from pulmonary tuberculosis or tuberculosis elsewhere (Mayed & Hussam 2011). Tuberculous infection causes destruction, caseation, and necrosis of vertebrae or may present as an abscess. The abscess may remain close to the vertebra and present on the radiograph as pre vertebral or Para vertebral abscess or it may move distally along the tissue planes to present as cold abscess (Cowan & Hibbert 1997; Nussbaum *et al.,* 1995). A delay in diagnosis and treatment can increase the risk of complications, including a spontaneous rupture of the abscess that can lead to trachea-bronchial aspiration or strider secondary to laryngeal edema. Early diagnosis is also essential in order to prevent the onset or progression of the neurological sequel of Pott's disease. (Parhiscar & Har-El 2001).

Figure 2: Lateral view X-ray showing the soft neck tissue revealing widening of the prevertebral space Containing areas of mixed opacity and lucency extending from the base of the skull to the level of the seventh cervical spine (C7), with the laryngeal air column almost obliterated, anterior displacement of the airway and straightening of the cervical spine.

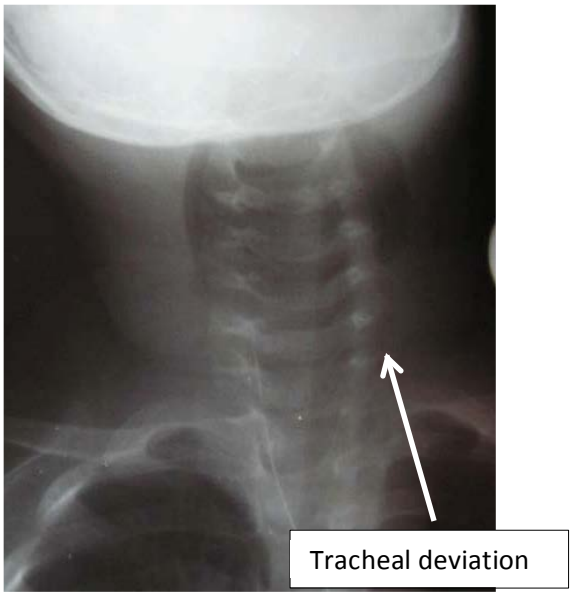

Figure 3: Anterio-Poterior view with deviation of the Tracheal to the left side of the patient

Figure 4: Lateral view showing post operative view with resolution of the retropharyngeal abscess.

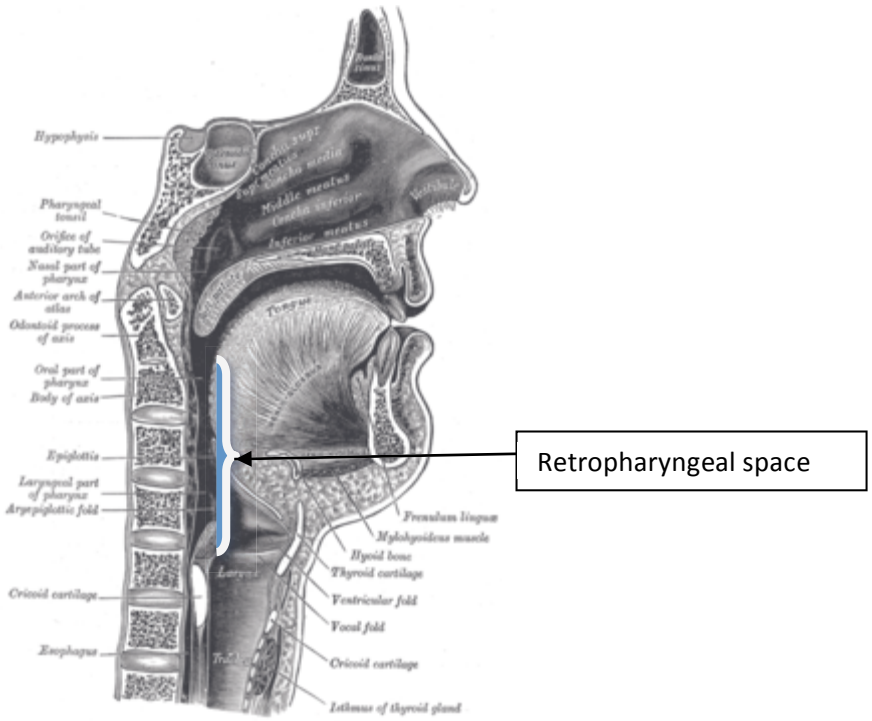

Figure 5: Sagittal section of Nose and Throat showing the retropharyngeal space. Republished with permission from translationdirectory.com assessed on 07/07/12 on google.com

6 Clinical Features

In children the symptoms include fever, sore throat, odynophagia, dysphagia, drooling, neck stiffness, muffled voice or hot potato speech in older patients, and difficulty in breathing (Afolabi *et al*., 2011). Dysphagia and difficulty in breathing are prominent symptoms as the abscess obstructs the air and food passages, stridor and croupy cough may be present. Examination may reveal torticollis; limitation of neck movement; cervical tenderness; boggy, inflamed oropharyngeal mucosa; and a bulge or fluctuant swelling of the posterior pharyngeal wall either be central or to one side or both sides. Anteromedial displacement of the tonsil, and cervical edema or lymphadenopathy may also be observed. The classic presentation occurs in less than 10% of children (Mayed & Hussam 2011).

In adult, there may be few symptoms and little to find on examination. A history of previous tuberculous contact, pharyngeal trauma by fish or chicken bone, dental problems and intravenous drug abuse must be specifically sought. Also, history of symptoms suggestive of diabetes mellitus or family history of diabetes should be explored. Pain occurs at a relatively late stage and may be associated with fever. Neurological signs may develop due to cord compression. There may be bulging of the posterior pharyngeal wall on examination. There is usually nothing to feel in the neck unless the abscess is huge (Marcelle2008). Deficits of cranial nerves IX, X, and XII and Horner's syndrome may also be observed. The sites of spinal involvement with tuberculous spondylitis are paradoxical lesion, which is the most

common site, central body lesion, anterior type in the anterior part of the vertebrae, appendicular type in the pedicle, lamina, transverse process and articular type in the posterior intervertebral joint (Tsui *et al*., 2004).

The neurological deficit occurring with tuberculous spondylitis either due to cold abscess, granulation tissue, necrotic debris and sequestrae from bone or the inter-vertebral disc tissue, and occasionally vascular thrombo-sis of the spinal arteries (Mayed & Hussam 2011). Neck may show tuberculous lymph nodes in cases with caries of cervical spine.

7 Investigation

Lateral neck radiograph findings include air in the soft tissues, loss of the normal curvature of the cervical spine, and abnormal widening of the prevertebral soft tissue may be found as in the index case presented above which indicated the presence of a gas forming organism in the retropharyngeal space. In others it may just be a widened prevertebral space which is almost twice the size of the vertebral body of the individual involved. Occasionally radiologic interpretation of this area in children may be difficult because of difficulty in positioning, redundancy of normal soft tissue, and variation with inspiration and expiration. Computed tomographic scan with and without contrast can confirm the presence of an abscess and determine its extent in the neck spaces and other spaces involved. It will also demonstrate signs of infection and differentiate between cellulitis and abscess, the position, size, and extent of the abscess will be established, as well as its relationship to the great vessels. However a great deal of controversy exists regarding the utility of the computed tomographic (CT) scan, especially in young infants. Ring enhancement around an area of low attenuation on CT is not pathognomonic of an abscess. Even free air in the retropharyngeal area, which may be considered a sign of abscess, can be due to anaerobic infection, fistulous connection, or even a necrotic cavity of a neoplasm (Basel Al-Sabah *et al*., 2004).

Chest radiograph is also done to ascertain there is no aspiration pneumonitis as this will increase the morbidity. Routine investigations should include urinalysis, random blood sugar, fasting blood sugar, haematocrit, WBC with differentials, serum electrolytes, urea and creatinine. Aderdour et al in a case report described a patient with retropharyngeal abscess who was found to have diabetes mellitus during routine laboratory work-up (Aderdour *et al*., 2008).

8 Treatment

The treatment of any abscess is surgical drainage to let out the purulent content, if retropharyngeal abscess is present, surgical drainage is absolutely indicated. This is an emergency and the need to adjust or stop diabetic medication needs to be specifically addressed by the anaesthetist but generally tablets are not given on the morning of surgery and insulin given in either a reduced dosage subcutaneously with a covering intravenous infusion of 5 percent dextrose, or as a sliding scale as well as intra-operative monitoring of patient's vital signs, blood sugar as well as urine output. In a sliding scale the patient receives a constant dextrose infusion such as dextrose 4 percent with saline 0.18 percent (with potassium 20 mmol in 1000 mL bag) at 100 mL/h and an insulin infusion adjusted one to two hourly according to blood glucose (Adrian Pearce 2008). There is some evidence that tight control of glucose to a range of 4-6 mmol/L is beneficial (Adrian Pearce 2008).

Most abscesses can be drained intra-orally. To prevent aspiration, the patient is placed in the anti-Trendelenburg (head down), and the neck is extended. The procedure is usually done under general anaesthesia with an endotracheal intubation done by an experienced anaesthetist depending on the size of the abscess. If the abscess is huge with difficult intubation a prophylactic tracheostomy can be done under local anaesthesia and the balloon of the tracheostomy tube inflated to prevent the aspiration of purulent material. The patient will be in the anti-Trendelenburg position while under general anesthesia. If intubation was difficult a small size endotracheal tube can be usedas it is done in the case report above where a size 2.5 mm endotracheal tube was inserted by an experienced anesthetist, and light packing with wet gauze was placed around the endotracheal tube apart from inflation of the high volume low pressure balloon of the endotracheal tube. Anesthesia will be induced with halothane in oxygen, and the trachea will be secured with 1 mg/kg suxamethonium depending on the weight of the patient involved. Anesthesia will be maintained with 66% nitrous oxide in oxygen and 0.5% to 1% halothane in oxygen, while muscle paralysis will be induced with 0.1 mg/kg pancuronium. Ensure adequate analgesia with 2 μg/kg fentanyl where not available paracetamol, pentazocine, or diclofenac can be used. A right size Boyle-Davis mouth gag will be introduced gently to expose the oral cavity and oropharynx, while doing this care should be taken to avoid rupture of the abscess. A test aspirate will be done using a wide bore needle and syringe to take specimen for microscopy culture and sensitivity and also identify the point of maximum collection. A cruciate incision will be made using a size 11 surgical blade and a surgical probe will be introduced to break down all loculi and suctioned out. Prior to extubation, residual neuromuscular block will be antagonized with a combination of 0.04 mg/kg neostigmine and 0.02 mg/kg atropine to reverse the anesthesia. Prevention of laryngeal spasm can be achieved by extubating the patient using a no-touch technique when the patient is awake (Tsui *et al*., 2004), as was done in the index case presented above or under deep anesthesia (possibly after a magnesium infusion) (Gulhas *et al*., 2003), in the event that the awake extubation failed. Complications of laryngospasm can be prevented through application of a gentle jaw thrust, but if this fails, the depth of anesthesia can be increased with intermittent positive pressure ventilation on a ventilator. Larygeal spasm is an indication for admission into the intensive care unit in any age group.

In children, pharyngotonsillitis is the most common source, whereas odontogenic infections are the most common cause in adults. Infections may easily spread to and from this space. If an abscess is identified, drainage is required. Traditionally, the external, cervical approach had been used exclusively to drain these abscesses because it provides excellent exposure, but with the development of CT, many abscesses can be drained transorally. If the CT demonstrates that the abscess is medial to the great vessels, drainage of the abscess can be performed safely and effectively through a transoral approach. The transoral approach is technically easier to perform and is associated with less morbidity and shorter hospitalization generally for the patients however in the diabetic patients they usually have a longer duration of admission in view of the reduced immunity and hyperglycemic state that affects the body response to some of the drugs used (Estrada *et al*., 2003). The external, cervical approach remains the approach of choice for abscesses that dissect along or are lateral to the great vessels. The incidence of surgical infection is increased in hyperglycemic diabetic patients in a number of different surgical populations. (Estrada *et al*., 2003) Diabetic patients are also more susceptible to deep neck infections than the nondiabetic population. (Parhiscar & Har-El 2001; Chen *et al*., 1998) Several aspects of immunity may deteriorate in short- or long-term hyperglycemia. Polymorphonuclear function is depressed particularly when acidosis is present (Joshi *et al*., 1999). Furthermore, leukocyte adherence, chemotaxis, and phagocytosis may also be affected (Delamaire *et al*., 1997; Gallacher *et al*., 1995).

A chronic retropharyngeal abscess can be drained safely via a trans-oral route as described above or by an external route. (Marra & Hotaling, 1996). It is well accepted that if the spine is stable & there is no neurological deficit, or minimal neurological signs, anti tuberculosis drug therapy and conservative neck stabilization should be the initial treatment. If neurological signs are prominent on patient admission or develop later, or if there is cervical instability or significant degree of subluxation, then surgical debridement and stabilization are indicated (Joshi *et al*., 1999; Delamaire *et al*., 1997).

9 Differential Diagnosis

The differential diagnosis of lesions in the retropharyngeal spaces are: infected adenoidal hypertrophy, foreign body in the aerodigestive tract especially when they present with symptoms of upper airway obstruction and acute epiglottitis are the most important differential diagnosis in children (Lee et al 2001). In adult the differentials are nasopharyngeal carcinoma (Pak *et al*., 1991), lipoma, malignant schwannoma, sarcoidosis, aberrant internal carotid artery, internal carotid artery pseudoaneurysm (Schmall & Stoll 2002), Forestiers disease, Kawasaki disease and haematoma following whiplash injury (Lee *et al*., 2004). Appropriate preoperative imaging with CT or MRI and transoral diagnostic biopsy is, therefore, recommended (Anagnostara *et al*., 2005).

10 Complications

Retropharyngeal abscess complication includes upper airway obstruction from the swelling, aspiration of the ruptured abscess leading to Aspiration pneumonitis, mediastinitis and empyema thoracis, other complications are pericardical effusion and jugular vein thrombosis, this complications are worsened by hyperglycemic state as seen in diabetic patients. The abscess may spread along the tissue plane predisposing to neck necrotizing fasciitis can cause dyspnea, delerium, mediastinitis, others are pericardial tamponade, DIC, neuropathy, diabetic ketoacidosis and neuropathy, overwhelming sepsis and death if blood sugar is uncontrolled in diabetics. It can also spread to involve vital neurovascular structure due to its anatomical relationship with the parapharyngeal space (Ganglani & Edward 1995). If the surgery is now done under general anaesthesia the patient also stand the risk associated with general anaesthesia and in diabetics there is associated problem of poor healing when sugar level is uncontrolled.

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