

Parotid abscess: a five-year review – clinical presentation, diagnosis and management

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Abstract

Parotid abscess is an uncommon complication of suppurative infection of the parotid gland parenchyma, commonly bacterial or viral. Ductal ectasis, primary parenchymal involvement, or infection of the intraparotid or periparotid lymph nodes can result in abscess formation. Parotid abscess may arise from ductal ectasis, primary parenchymal involvement, or infection of the subcapsular lymph nodes.

The operative records for all the patients who underwent surgeries in the Department of Otorhinolaryngology, Head and Neck Surgery of the National University Hospital, Kuala Lumpur, Malaysia between January 2001 and December 2005 were retrospectively reviewed. Our case series comprises 15 patients, with 10 males and five females with a median age at presentation of 51 years old. Diabetes mellitus is a significant comorbid factor, with six patients being diabetics. Among the diabetics, two patients presented with facial nerve palsy and one of them also died due to overwhelming septicaemia. Here, we discuss the presenting symptoms, predisposing factors, investigations, microbiology and complications of this condition.

Key words: Parotitis; Parotid Gland; Abscess; Facial Nerve; Diabetes Mellitus

Introduction

The parotid gland, a major salivary gland, contains 20 to 30 intraparotid and periparotid lymph nodes, which drain the lymph from the skin of the forehead, the root of the nose, the upper lip, the cheek, the temple, and the auricular region, including the external auditory canal. Bacterial or, less commonly, viral infection of these lymph nodes or the glandular parenchyma can give rise to inflammatory and subsequent suppurative changes. At a cellular level, erosion of the duct with subsequent penetration of the bacteria and exudate into the parenchyma promotes glandular destruction.¹ Ductal ectasis, primary parenchymal involvement, or infection of the intraparotid or periparotid lymph nodes can result in abscess formation.²

The abscess can arise from the superficial, the deep lobe or both. As the facial nerve courses through the gland, it too can be involved with resultant facial nerve palsy.

Adjacent to the deep lobe of the parotid gland is the parapharyngeal space, a fat-filled potential space that can be divided further into prestyloid and poststyloid space. The more anteriorly located prestyloid space contains connective tissue, fat, the internal maxillary artery, lingual nerve, inferior alveolar nerve, and auriculotemporal nerve. The

posterior or poststyloid compartment is essentially neurovascular, containing the internal carotid artery, the internal jugular vein, lower cranial nerves IX, X, XI, and XII, cervical sympathetic chain, and lymph nodes.

Extension of the abscess collection into this space adds to the morbidity of the patient as the parapharyngeal space contains multiple vital structures and the airway can also be compromised.

Material and methods

The operative records for all the patients who underwent surgery in the Department of Otorhinolaryngology, Head and Neck Surgery of National University Hospital, Kuala Lumpur between January 2001 and December 2005 were retrospectively reviewed. All cases of parotid abscess, with or without parapharyngeal or other deep neck space extension were included. Acute parotitis, parapharyngeal or other deep neck space abscesses not involving the parotid gland were excluded. Ultimately, 15 patients were selected. Their demographic data, clinical history, treatment, microbiology results, duration of hospital stay, complications and outcome were reviewed.

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Results

Epidemiology

Of the 15 patients, there was significant gender predilection with five females and 10 males. Median age at presentation was 51 years old (range: 11 months to 77 years). The age group and sex distribution is illustrated in Table I. The patient group included one pregnant woman at 32 weeks of gestation and three children (age 12 years and below). The Malay ethnic group constituted the majority (80.0 per cent) of the patients. There were two Chinese patients (13.3 per cent) and only one Indian patient (6.7 per cent).

Presentation

The presenting symptoms were varied and are summarised in Table II. Most (10/15) presented with swelling on the right. Although two patients had pre-existing parotid region swelling, all presented with acute sudden increase of swelling for an average duration of 15.2 days (range: three days to two months) before they presented to us. An acute infection of the parotid gland is characterised by the sudden onset of a warm, indurated, erythematous swelling at the region of the parotid.

Ipsilateral facial nerve palsy of lower motor neuron type with House–Brackmann grading of III and IV were noted in two patients. Of the five patients who noted the presence of pus or blood collection in the mouth, four had pus discharging from the Stensen’s duct while one had the abscess rupturing via the buccal mucosa into the oral cavity. One diabetic patient presented in sepsis and with facial nerve palsy on admission, with leukocytosis, anaemia and thrombocytopenia. Three patients had a parapharyngeal extension as evidenced by medialisation of the lateral pharyngeal wall. However, none were admitted with any signs of respiratory distress.

Precipitating factors

Obvious precipitating or predisposing factors were identified in some patients and are summarised in Table III. None of the paediatric patients had diabetes mellitus. Five adult patients were known to have Type II diabetes mellitus for an average duration of 10.2 years (range: one to 17 years) while

TABLE I
AGE AND SEX DISTRIBUTION OF THE PATIENTS

Age (years)	Sex		Total (no. of patients)
	Male	Female	
0–10	2	1	3
11–20	–	–	–
21–30	1	1	2
31–40	1	1	2
41–50	–	–	–
51–60	4	1	5
61–70	1	–	1
71–80	1	1	2
Total	10	5	15

TABLE II
SYMPTOMS AT PRESENTATION

Symptoms at presentation	Number of patients (%)
Mass/swelling	15 (100)
Pain	15 (100)
Fever	12 (80.0)
Trismus	9 (60.0)
Facial asymmetry	2 (13.3)
Pus/blood in oral cavity	6 (40.0)
Odynophagia/Dysphagia	1 (6.7)

Each patient may have one or more symptoms.

another was a newly diagnosed case. Generally, their compliance to treatment was poor. The initial random blood sugar was grossly deranged for the diabetic patients (range 12.2–33.7 mmol/l), with an average admission random blood sugar of 24.1 mmol/l and average admission glycated haemoglobin (HbA1c) of 13.2 per cent (range: 10.2–15.8 per cent). One diabetic patient of 17 years also had a history of melioidosis in the year 2002, and had been admitted before for acute osteomyelitis of the tibia and carbuncle, where pus on both occasions grew *Pseudomonas pseudomallei*. One diabetic patient presented in septicaemia. Incidentally, both the patients who presented with facial nerve palsy were also diabetic. On the other hand, gestational diabetes mellitus was excluded in the pregnant patient.

A nine-year-old boy and the pregnant woman presented earlier with acute right parotitis. In both patients, initial ultrasound showed no abscess collection. They were managed conservatively with intravenous cefuroxime and discharged with oral cefuroxime. However, they returned about a week later with increased swelling and fever, and ultrasound confirmed abscess collection in the parotid by then. On retrospective review, the boy tested positive for the IgM anti-mumps antibody.

Two patients had pre-existing parotid swelling, diagnosed via fine needle aspiration cytology as Warthin’s tumour, for five and 20 years each without any prior surgical treatment. One of them was also diagnosed with pulmonary tuberculosis in 1999 and had completed eradication therapy. He had remained free of pulmonary tuberculosis symptoms ever since. Oral hygiene was poor for three patients with two of the patients having concurrent adjacent periapical and periodontal abscesses requiring extraction of teeth during the same admission.

TABLE III
PREDISPOSING/PRECIPIATING FACTOR

Predisposing/precipitating factor	Number of patients (%)
Diabetes mellitus	6 (40.0)
Acute parotitis	2 (13.3)
Poor oral hygiene/dental infection	3 (20.0)
Pre-existing parotid Warthin’s tumour	2 (13.3)

Investigation

Total white cell count was raised with relative neutrophilia in 12 patients (80.0 per cent). The average total white cell count was $14.6 \times 10^9/l$ (range: $5.7-23.8 \times 10^9/l$).

The presence of abscess collection was suggested by observation of pus draining from the Stensen's duct or needle aspiration of the swelling. Radiological investigations were also performed. On ultrasound, the abscess collection would be seen as a hypoechoic lesion with echogenic rim, occasionally with an irregular wall within the gland parenchyma while the collection would enhance with rim enhancement on a contrasted computed tomography (CT) scan (Figure 1). Altogether, five patients, including all three children, underwent ultrasound and another eight underwent CT scan. Two patients were excluded due to mechanical breakdown and the septic patient was deemed too ill for transfer. In our series, the presence of pus was accurately diagnosed in all who underwent ultrasound scanning (sensitivity of 100 per cent) as compared to seven of eight patients (sensitivity of 87.5 per cent) who had CT scans done. Although frank pus was aspirated in the patient with long-standing Warthin's tumour, the CT scan suggested only a solid parotid tumour with no abscess collection (Figure 2). Three patients were noted to have a parapharyngeal extension of the tumour on CT scan. None of the patients were found to have sialolithiasis on CT scan or ultrasound.



FIG. 1

Contrast-enhanced CT axial scan showing a left parotid abscess. The left parotid gland is enlarged with rim enhancement, and its liquefied component has an irregular margin with air pockets within. The carotid sheath is displaced inferomedially and the internal jugular vein is thrombosed. Medially the abscess is abutting the parapharyngeal space.



FIG. 2

Contrast-enhanced CT showing a large right parotid Warthin's tumour of 20 years duration in a patient with symptoms suggestive of an abscess collection. Despite the homogenous appearance, pus was drained intra-operatively.

Treatment

On admission, the patients were rehydrated accordingly with intravenous fluids and commenced on antibiotics. As the clinician did not have advance knowledge of the culture and sensitivity results, the choice of empirical antibiotics was based on the most likely pathogens and the surgeon's preference. Seven patients were prescribed intravenous cephalosporins (ceftriaxone or cefuroxime) while another eight were given intravenous ampicillin/clavulanate. Ten of them had concurrent intravenous metronidazole administered. The culture-directed antibiotics were prescribed accordingly later whenever indicated.

Incision and drainage were performed under general anaesthesia via a modified Bailey's incision (for 13 patients) or a transcervical approach (for two patients) over the most pointing portion of the abscess. Incidentally, in addition to drainage of pus, one of the patients with a large Warthin's tumour also underwent tumour enucleation and biopsy with tracheostomy. As the mass measured $10 \times 8 \times 8$ cm, superficial parotidectomy would require prolonged duration of general anaesthesia, which was deemed too risky for the elderly patient. The other patient with Warthin's tumour was scheduled for an elective superficial parotidectomy later. In all patients who underwent modified Blair's incision, the anterior-based facial flap was elevated and abscess drained by way of radial incisions in the parotid fascia parallel to the facial nerve branches. The parotid gland would be gently explored with blunt finger dissection or blunt forceps to break down loculi of pus. A corrugated drain was inserted at the end of the procedure. Three patients required overnight intensive care unit ventilation due to the intra-operative documentation of supraglottic and laryngeal oedema and

TABLE IV
MICROBIOLOGY RESULTS

Micro-organism cultured	Sensitivity	Resistance	Number of patients
<i>Staphylococcus aureus</i> Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA)	Gentamicin, oxacillin Vancomycin	Penicillin G Netilmycin, cloxacillin, gentamicin	2* 1
<i>Streptococcus milleri</i> <i>Streptococcus pyogenes</i>	Penicillin G, ampicillin Penicillin G, cefuroxime, ampicillin	– –	2 1
<i>Klebsiella sp.</i>	Ampicillin/clavulanate, cefuroxime, gentamicin	Ampicillin	3
<i>Pseudomonas sp.</i>	Piperacillin/tazobactam, gentamicin, amikacin	–	1*
<i>Haemophilus sp.</i> No growth	Ampicillin/clavulanate –	– –	1 5

*One patient had mixed growth of *Pseudomonas* and *Staphylococcus aureus*.

potential airway compromise. They were extubated uneventfully the following day.

Microbiology

Intra-operatively, pus was sent for culture and sensitivity studies and these results are illustrated in Table IV. The commonest organisms isolated were *Staphylococcus aureus* and *Klebsiella species*. The septicaemic patient had a mixed growth of *Pseudomonas sp.* and *Staphylococcus aureus* and her blood culture and sensitivity study grew *Staphylococcus aureus*. There were six positive cultures for Gram-positive organisms and five for Gram-negative organisms. A Ziehl-Neelsen stain was performed for all patients, for which none was positive. Also, none of the histopathological specimens of the abscess walls suggested any tuberculosis or malignancies.

Complication and outcome

The septicaemic patient died on the fifth day of admission despite aggressive therapy. The rest of the patients were warded for an average of 14.2 days (range: four to 50 days). The paediatric patients had an uneventful recovery and were discharged well after an average duration of 6.3 days. In contrast, two of the adult patients had a prolonged recovery period due to poor wound healing. One of them required two further surgeries under general anaesthesia. Her recovery was complicated by poorly controlled diabetes, delayed wound healing, methicillin-resistant *Staphylococcus aureus* (MRSA) infection and a stress ulcer which culminated in upper gastrointestinal bleeding. Oesophagogastroduodenoscopy performed by the surgical team demonstrated multiple prepyloric and duodenal ulcers with erosive gastritis. Wound desloughing and later, a V-Y advancement flap were performed during the same admission. After 47 days, she was discharged with complete resolution of the abscess. Another non-diabetic patient also had wound healing problems with extensive slough formation, resulting in her being the longest-staying patient (50 days).

Of the two patients with facial nerve palsy, one developed aspiration pneumonia due to difficult intubation secondary to laryngeal oedema and died from overwhelming septicaemia while the other patient had residual facial nerve palsy which persisted even at two years follow up. The pregnant lady developed premature contractions on the first post-operative day. An obstetrics consult was obtained, and intravenous terbutaline for tocolysis was commenced and labour was suppressed successfully. Later in the ward, she had a stress ulcer and presented with upper gastrointestinal bleeding which was conservatively managed. She was discharged well after eight days of admission.

Only one patient required a repeat CT scan and repeat drainage procedure within the same admission. Increasing facial swelling warranted a repeat CT scan two days later, which still showed significant multiple loculated abscess collection in the parotid, submandibular and parapharyngeal space. An urgent re-exploration and tracheostomy was performed due to laryngeal oedema. Intra-operatively, extensive necrotic tissue was present and the facial nerve was not clearly identified. On recovery, she developed immediate Grade IV facial nerve palsy. She was discharged after 14 days and the facial nerve improved to Grade III on follow up one and a half years later.

In one patient with a large parotid abscess with parapharyngeal extension, the CT scan documented ipsilateral internal jugular vein thrombosis but the patient did not show any signs and symptoms of increased intracranial pressure.

The patients were followed up post-operatively until the wound completely healed. None had re-collection of abscess which required a second admission.

Discussion

Parotid abscesses are rare in both children and adults, affecting mainly newborns, premature infants, and the immunocompromised.¹ They occur as a progression or sequelae of acute suppurative parotitis, commonly bacterial or rarely viral. Viruses implicated include mumps (commonest),

cytomegalovirus, HIV, Epstein–Barr virus, influenza, and parainfluenza. Infective parotitis must be differentiated from other causes of parotid enlargement, namely connective tissue disease, benign and malignant tumours, alcoholism, diabetes, gout, uraemia, sarcoidosis and many others.

Although parotid abscesses are commonly associated with elderly debilitated patients, our series features 12 (80.0 per cent) patients under the age of 60 years including three children and only three (20.0 per cent) patients over 60 years, with a median age of 51 years. It was thought that the hot climate with resultant chronic oral dehydration and reduced salivary flow may have contributed to the incidence among the relatively young patients in this tropical region.³ Three patients demonstrated poor oral hygiene with carious teeth, which was most probably the septic focus. Predisposing conditions to acute suppurative parotitis included dehydration, malnutrition, immunosuppression, poor oral hygiene, dental infection, sialectasis, ductal obstruction and antihistamine medication. Infection of the parotid gland can arise from ascending infection via the Stensen's duct by the bacteria from the oral cavity or bacteraemia.⁴ The peri- and intra-parotid lymph nodes may provide a route for contiguous spread into the neighbouring gland parenchyma.

Interestingly, two patients had acute parotitis one week prior to the onset of their parotid abscess. The child had a confirmed mumps infection, with a positive IgM anti-mumps antibody indicating recent infection. By the second day of infection, IgM is usually present in 70 per cent of patients and in all patients by the fifth day.⁵ His presentation was also unusual as only 10 per cent of the symptomatic cases of mumps have unilateral presentation⁶ and the MMR (measles, mumps, rubella) vaccination is mandatory at the age of nine months in this country. Moreover, mumps are rarely associated with parotid abscess. We are also unable to pinpoint the predisposing factor to parotitis in the pregnant woman. Paradoxically, pregnancy-related hormonal changes will increase salivary flow rate.⁷

Acute infection of the parotid gland is characterised by the sudden onset of a warm, indurated, erythematous swelling of the ipsilateral cheek. Stretching of the dense parotid capsule gives rise to severe, nagging pain. We found the complaints of swelling and pain to be the most consistent in all patients. Clinical signs include a swollen and tender parotid gland, toxæmia with marked fever and leucocytosis. The Stensen's duct orifice is usually inflamed and pointing, and in acute suppurative parotitis or parotid abscess, pus may be exuding spontaneously, or induced by gentle massage over the gland. However, absence of purulent Stensen's duct discharge does not exclude both conditions, as encountered in this series. A fluctuant parotid mass is also rarely present even in the advanced stages of suppuration.⁴ Clinically, no specific features were found to differentiate between glandular abscess and other types of suppurative parotitis,² hence the role of radiological investigations.

CT scans and ultrasound are important imaging modalities to differentiate between acute suppurative parotitis and frank abscess collection. CT scans and ultrasound are highly efficient in defining the extent of these lesions.² CT scanning often is the first radiological evaluation of choice because of its ability to enhance and differentiate soft tissue densities within the gland,⁸ besides being able to also exclude possible underlying malignancy. In acute inflammatory diseases, ultrasound can distinguish between obstructive or nonobstructive sialoadenitis. Abscess formations may be detected and the maturation of the colligation may be controlled.⁹ In sialolithiasis, ultrasound is complementary in detecting 90 per cent of stones larger than 2 mm in the gland parenchyma or duct.^{9,10} Abscesses may be punctured under ultrasound guidance, although not attempted in this series. In our series, the ultrasound scan had 100 per cent sensitivity as compared to the CT scan with 87.5 per cent sensitivity in detecting abscess collection.

Literature studying radiological features of parotid abscess are lacking. However, Holt *et al.* defined the CT findings of deep neck abscess as having a single cystic or multiloculated appearance, low-density CT number, air and/or fluid at the centre of the abscess, contrast enhancement of the abscess wall, and anatomic boundaries that fit fascial spaces.¹¹ On the CT, complete rim enhancement, with a sensitivity of 47 per cent and specificity of 83 per cent, was the most useful radiological feature in differentiating an abscess from cellulitis.^{12,13}

Infectious parotitis and parotid abscess have been reported as rare causes of facial nerve palsy. Approximately half had partial paralysis and another half had complete paralysis. For those who presented with partial paralysis, the neurological deficit commonly involved the marginal mandibular and buccal branches. The most common organisms isolated from these cases were *Staphylococcus*, *Mycobacterium tuberculosis*, anaerobes, *Pseudomonas* and in some, no pathogen was isolated.¹⁴ In our series, one of the patients who presented with pre-operative facial nerve palsy had a mixed growth of *Pseudomonas sp.* and *Staphylococcus aureus* in the pus culture, while in the other patient, culture studies showed no growth. Pathophysiologically, it was thought that intense inflammatory reaction from parotitis with local toxic effect, perineuritis and ischaemic neuropathy from the rapid increase in size with subsequent compression could have contributed to the facial nerve deficit.

Another rare occurrence in this case series was the case of the two elderly males with parotid abscess following a long-standing Warthin's tumour (adenolymphoma). Adenolymphoma characteristically affects the parotid gland and commonly occurs in males (95 per cent).¹⁵ Arising from heterotropic tissue within the parotid lymph nodes and containing both epithelial and lymphoid components, the lymphoid element may be infected and subsequently becomes inflamed and suppurative (Figure 3). It may also give rise to an appearance which mimics a malignancy.

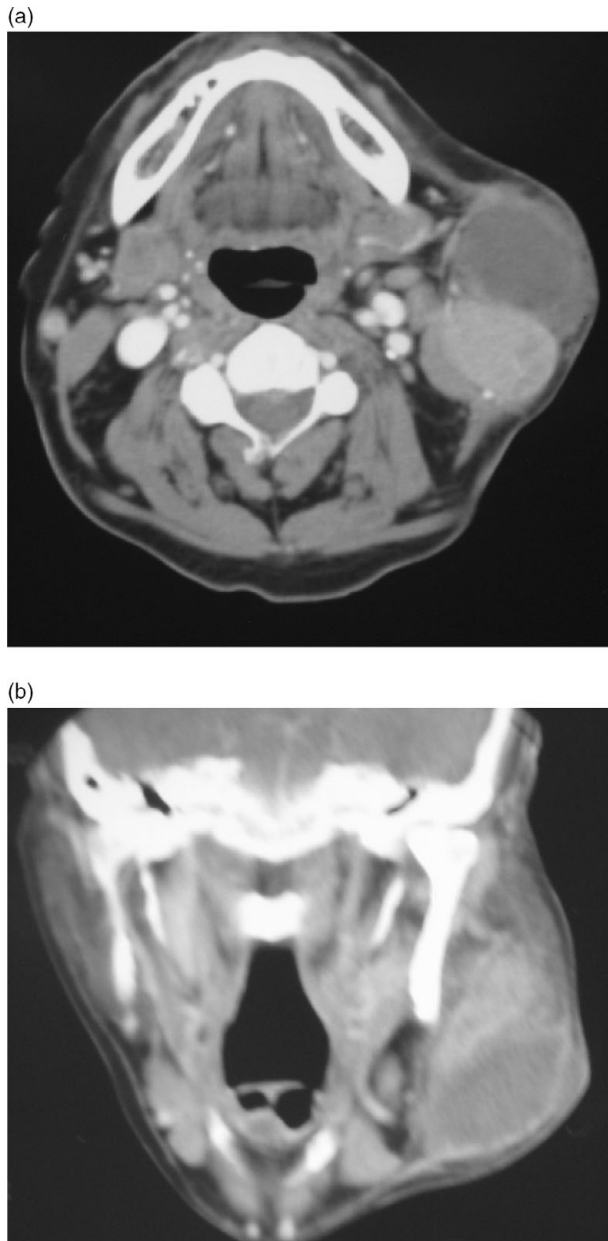


FIG. 3

Contrast-enhanced CT showing a left right parotid Warthin's tumour of five-years duration. The abscess is seen at the hypodense anteroinferior portion with rim enhancement and central necrosis (a) as compared to the more solid portion of the tumour posterosuperiorly (b).

The most common pathogen associated with acute bacterial parotitis is *Staphylococcus aureus*.^{2,4,16} In paediatric head and neck abscesses, *Staphylococcus aureus* was also the commonest pathogen isolated.¹⁷ Although a common commensal skin flora, it is capable of abscess formation in the local and visceral infection due to its extracellular products, like coagulase, fibrolysin and hyaluronidase.¹⁷ The commonest pathogen cultured in our series was also *Staphylococcus aureus*, including one patient with MRSA. Other pathogens reported in the literature were varied, including *Streptococcus*, *Hemophilus*, *Pseudomonas*, *Mycobacterium tuberculosis*, anaerobes and many others.^{4,16,18} Pulmonary tuberculosis and melioidosis

are endemic in some parts of South-East Asia and even though two patients had a history of tuberculosis and melioidosis, none of them had a reinfection. None of the patients grew anaerobes.

Two patients grew *Streptococcus milleri*, a common commensal in the mouth and gastrointestinal tract. True to its reported aggressive nature in the head and neck,¹⁹ in one patient, the parotid abscess was associated with periodontal, periapical abscess and significant parapharyngeal extension with a fistula into the oral cavity. The other patient had a rapidly progressing abscess on presentation and post-operatively this reaccumulated, requiring an ultrasound-guided aspiration. On the other hand, *Streptococcus pyogenes*, usually transmitted via airborne droplets, is a ubiquitous organism also known to be capable of abscess formation in the head and neck region among children.¹⁷ All strains remain sensitive to benzylpenicillin, as in our series as well. Only one patient's pus culture grew *Pseudomonas sp.* (together with *Staphylococcus aureus*). *Pseudomonas aeruginosa* is a strictly aerobic, gram-negative bacillus that is usually acquired opportunistically in hospitals. Five other patients did not have pathogens isolated, probably as a result of the infection treated by the general practitioners prior to presentation.

As the oral cavity predominantly contains numerous mixed floras of anaerobes, taking cultures from the opening of Stensen's duct would introduce contamination of the specimen. Needle aspiration of the gland is the best method to identify the causative organism,⁴ though it may be difficult in an uncooperative paediatric patient.

Diabetes mellitus is an extremely common condition which is growing towards an epidemic proportion in this part of the world. In Malaysia, the prevalence of diabetes has steadily increased from 0.6 per cent in 1960, to 2.1 per cent in 1982, 6.3 per cent in 1986 and 8.3 per cent in 1996, and rising at an alarming rate.²⁰ The implications for the individual patient and general healthcare cannot be simply overlooked. As accurately depicted in the Diabetes Care Data Collection Project Study involving 6836 patients with the majority of the patients (73 per cent) having an HbA1c exceeding 7.5 per cent,²⁰ the diabetes mellitus patients in this study have had long-standing diabetes mellitus aggravated by poor compliance (average admission random blood sugar of 24.1 mmol/l and HbA1c of 13.2 per cent).

Consistent with the Taiwanese studies,^{21,22} we also found that poorly compliant diabetic patients had a longer duration of ward admission and *Klebsiella sp.* being the commonest organism isolated. The average hospital stay was 11.9 days in our non-diabetes mellitus patients as compared to 18.2 days in the diabetes mellitus group. All positive *Klebsiella sp.* cultures came from diabetes mellitus patients and all were sensitive to ampicillin/clavulanate, the empirical antibiotic of choice in this series. In fact, any patient who presents with *Klebsiella pneumoniae* deep neck space infection should have diabetes mellitus excluded.²² Short- and long-term hyperglycemia disrupts the cellular

immune functions. Prolonged usage of broad-spectrum antibiotics in a diabetic patient may have favoured the selective colonisation of the upper respiratory tract with a Gram-negative organism such as *Klebsiella* or *Pseudomonas*, because the commensals were phased out.²³ Added to that, bacteria from the oral cavity can also readily ascend into the parotid gland; a high prevalence of oropharyngeal colonisation by Gram-negative bacilli among diabetic patients may explain their susceptibility to focal infections.^{22,24} A retrograde spread of infection along the parotid duct would have been more likely than the haematogenous route in the absence of xerostomia.¹ Diabetes mellitus is also associated with greater morbidity as both the facial nerve palsies and death secondary to septicaemia occurred in the diabetes mellitus group compared to none in the non-diabetes mellitus group.

In acute suppurative parotitis, the role of conservative management cannot be overemphasised. Patients should be adequately rehydrated, and started on intravenous antibiotics. Surgical drainage is indicated in the event of failure of medical therapy i.e. lack of improvement after three to five days of antibiotic therapy, facial nerve involvement, involvement of adjacent vital structures or deep neck fascial spaces, or frank intraparenchymal abscess formation.⁸ Another study cited fluctuancy of the mass, progressive induration, oedema, and toxicity as indications for surgical drainage.⁴

- **In the management of parotid abscess, early diagnosis, adequate drainage, and control of infection by appropriate antimicrobial agents are of paramount importance**
- **Diabetes mellitus is a significant comorbid factor. Optimum glycaemic control and proper follow up cannot be overemphasised**
- **Post-operatively, the patient should be counselled on maintenance of good oral hygiene, adequate hydration, and prompt treatment of bacterial infection of the oropharynx to reduce the recurrence of suppurative parotitis**

Although we concur with the rationale for conservative medical management, all these patients presented with frank pus collection (clinically or radiologically), facial nerve involvement, septicaemia and parapharyngeal extension, which are indications for an urgent drainage procedure. In our case series, intravenous antibiotics were commenced in all patients and 13 of the 15 patients had their surgery performed on the same or the following day after admission. A prompt drainage may also result in improvement of facial nerve palsy,¹⁴ although our patient's neurological deficit persisted.

Post-operatively, the patient should be counselled on maintenance of good oral hygiene, adequate hydration, and prompt treatment of bacterial

infection of the oropharynx to reduce the recurrence of suppurative parotitis.

Conclusion

In the management of parotid abscess, early diagnosis, adequate drainage, and control of infection by appropriate antimicrobial agents are of paramount importance. The empirical antibiotics should be tailored to the common organisms and its sensitivity and resistance trends, failing which, surgical drainage is indicated. With diabetes mellitus becoming a more menacing threat with greater prevalence, optimum glycaemic control and proper follow up cannot be overemphasised as it has far-reaching consequences on the individual patient and general healthcare. Even though parotid abscess is relatively rare, if not managed appropriately, this condition can be associated with significant morbidity and mortality.

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