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Original Research

Parotid abscess: A clinical analysis of 40 cases in a tertiary care hospital in India

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ABSTRACT

Parotid abscess is a rare disease which has been associated with high mortality in the past. We present our experience in managing the disease in one of the largest series in published literature.

Objectives: To study the clinical, microbiological profile and management of parotid abscess in a tertiary care hospital.

Methodology: A retrospective review of all patients diagnosed to have parotid abscess between January 2006 and January 2016 was undertaken.

Results: Forty patients were diagnosed to have parotid abscess with a male:female ratio of 2:1. Brawny induration without fluctuation was the most common presentation. Nine patients developed parotid abscess while being treated in the intensive care unit for various medical illnesses. The majority of the patients had immunosuppression in the form of uncontrolled diabetes mellitus or systemic auto-immune disease. Thirty-three patients required incision and drainage, the remaining were treated with antibiotics alone or with the aspiration of the pus. *Staphylococcus*, *Streptococcus*, and *Klebsiella* were the most common micro-organisms grown. The organisms were consistently sensitive to the first line antibiotics (Cloxacillin, Amoxicillin–clavulanic acid, and Gentamicin). Disease-associated mortality was present in one patient.

Conclusion: Parotid abscess is a disease that presents in immuno-compromised patients. First line antibiotics and surgical decompression of the tense parotid fascia and drainage of the abscess is the treatment of choice. Disease-specific mortality is low when appropriate treatment is instituted.

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1. Introduction

Parotid abscess refers to the suppurative inflammation of the parotid gland. The spectrum of inflammation of the parotid gland extends from parotitis to acute suppurative parotitis or parotid abscess [1]. Historically, the mortality rate has been high [2]. Advances in antibiotic therapy, timely surgical intervention and improved critical care have definitely changed the prognosis over the past few decades. We have analysed our experience with this disease and have looked at the literature around the same. To our knowledge, this is the largest reported series of the condition over the past five decades and the largest from Asia.

2. Methods

A retrospective chart review of 40 patients diagnosed to have parotid abscess over a 10-year period between January 2006 and January 2016 was done in a tertiary care hospital in South India.

Institutional Review Board (IRB) approval was obtained for the study. All the patients over 18 years of age were included.

The clinical and histopathological data, treatment modalities/modalities and outcomes were collected from the clinical workstation database.

The data collected was analysed using SPSS software for Windows version 16.0. Chicago, SPSS Inc.

3. Results

3.1. Demographics

Forty patients were diagnosed to have the parotid abscess which required hospital admission.

The mean age at presentation was 46.8 years (standard deviation \pm 15.8) (median 44 years) with 28 male patients (70%). Of the

* AsianAOMS: Asian Association of Oral and Maxillofacial Surgeons; ASOMP: Asian Society of Oral and Maxillofacial Pathology; JSOP: Japanese Society of Oral Pathology; JSOMS: Japanese Society of Oral and Maxillofacial Surgeons; JSOM: Japanese Society of Oral Medicine; JAMI: Japanese Academy of Maxillofacial Implants.

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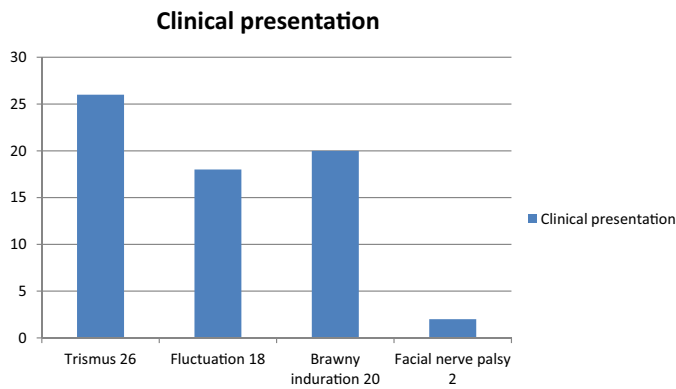


Fig. 1. Clinical presentation of patients with parotid abscess.

forty patients, 15 patients (37.5%) were referred to the Department of General Surgery after initially being managed by another department or centre. Seven of these patients were initially managed by general physicians, four patients by medical oncologists and radiation therapists, four patients were partially treated at another centre with an incision and drainage and transferred to our hospital.

3.2. Comorbid illnesses

In the studied cohort, 20 (50%) patients were diabetic, 10 (25%) hypertensive, 4 (10%) had chronic kidney disease, and 6 (15%) patients had a systemic autoimmune disease. Three patients were receiving chemotherapy for malignancy when they developed a parotid abscess. Nine patients (22.5%) were being treated in the Medical ICU for systemic medical illnesses when they developed the parotid abscess.

3.3. Clinical presentation

Most parotid abscesses 29 (72.5%) presented in the warm months of the year (March through September), as compared to the relatively cooler months. The clinical presentation varied from minimal pain to trismus, facial nerve palsy, and septic shock (Fig. 1). Although fluctuation was seen in a few patients, most patients presented with brawny induration only.

Two patients (5%) had facial palsy preoperatively, one had malignancy and the other patient had extension into the deep neck space and the external auditory canal. The facial palsy in the former patient resolved after the definitive treatment but failed to resolve at 2 months postoperatively in the latter patient who was subsequently lost to follow-up.

The duration of symptoms before being seen by a surgeon varied from a few hours to months. Twelve patients were seen within a week of the symptoms appearing while the rest had symptoms for more than a week before being seen by a surgeon in the hospital. The delayed presentation may be explained by the fact that we are a referral hospital.

Etiologically, 26 patients (65%) did not have any surgical predisposition (idiopathic) while 7 (17.5%) patients had dental causes, 2 patients (5%) had tuberculosis of the parotid gland, and 1 patient (2.5%) had the squamous cell carcinoma of the retromolar trigone with suppurative lymph nodes in the parotid region. Poor oral hygiene was present in 17 patients (42.5%) and calculus was noted in the Stensen's duct in 2 (5%) patients.

The most common radiological investigation was ultrasonography (US) followed by CT/MRI scan. The US of the parotid gland was done in 17 (42.5%) patients; the features of overt parotid abscess were present in 12 patients while those of parotitis but no formed abscess were seen in five patients. Among the five patients in whom

the US had revealed features of parotitis but no abscess, 4 patients underwent incision and drainage for brawny induration and systemic inflammatory response syndrome (SIRS). Intra-operatively, pus was found in three patients while 1 patient had copious serosanguinous fluid. All these patients recovered uneventfully following the incision and drainage. Fourteen patients (35%) underwent cross-sectional imaging (CT/MRI) for trismus, facial nerve palsy, or clinical features suggestive of the spread of infection to the deep neck spaces. The cross-sectional imaging revealed findings consistent with a parotid abscess in 8 patients (57.14%), a deeper extension (parapharyngeal space involvement) in 4 patients (28.57%), and parotitis in 2 patients (14.28%).

3.4. Management

Intravenous antibiotic was initiated for all patients; oral chlorhexidine mouth wash to improve oral hygiene was used and sialagogue to stimulate salivation was also encouraged. The antibiotic of choice for empirical therapy of parotid abscess was cloxacillin and metronidazole. This was later changed to appropriate antibiotics based on culture-sensitivity reports.

Thirty patients (76%) had surgical intervention (incision and drainage). Five patients (12.5%) had aspiration of the abscess, out of which three patients eventually required a subsequent surgical drainage.

Five patients (12.5%) did not undergo any surgical intervention. One of these patients presented with an already (spontaneously) ruptured abscess with resolution of symptoms. The second patient presented with septic shock and multi-organ dysfunction to which he succumbed even before any intervention could be attempted. The other three patients (7.5%) recovered uneventfully.

Intraoperatively, in twenty-nine patients (72.5%), pus was present while in four patients (10%), only serous fluid was present. Eleven patients (27.5%) had an extension to deep neck spaces intra-operatively. The deep neck spaces were drained through the same incision (modified Blair's incision) with medial extension if required. A drain was inserted to aid continuous drainage of fluid.

Re-exploration for residual and unresolved abscesses was done in four patients (10%).

Three of the four patients requiring re-operation had deep neck space extension of parotid abscess and one patient had tuberculosis of the parotid region. All the patients recovered after the re-exploration.

Postoperative facial weakness was not present in any patient who did not have palsy preoperatively.

3.5. Pus culture and sensitivity

Fluid for culture and sensitivity was sent for 32 patients (80%). Twenty-seven patients (84.38%) had monomicrobial culture growth while two patients (6.25%) had polymicrobial growth. *Staphylococcus aureus*, *Klebsiella pneumoniae*, and *Streptococcus* were the most common organisms isolated.

Three patients had no growth. Table 1 displays the microbiological profile of parotid abscess.

Table 1
Microbiological profile.

Micro-organism	Number (%)
<i>Staphylococcus aureus</i>	10/29 (34.4%)
<i>Klebsiella</i>	6/29 (20.6%)
B haemolytic strep	4/29 (13.7%)
Non haemolytic strep	2/29 (6.8%)
<i>Enterococcus</i>	2/29 (6.8%)
Misc (<i>Proteus</i> , <i>E. coli</i> , <i>Enterobacter</i>)	3/29 (10.3%)
Tuberculosis	2/29 (6.8%)

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