Case Study

Bilateral intratonsillar abscesses: A first case report in an adult patient

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ABSTRACT

Intratonsillar abscesses are not uncommon. The reported incidence of unilateral tonsillar abscess is 5 percent. There have not been any cases of bilateral tonsillar involvement previously reported. The clinical presentation of intratonsillar abscess are similar to peritonsillar abscess. Negative aspiration of pus from a case of intratonsillar abscess presumed to be peritonsillar abscess can lead to misdiagnosis and subsequent delay in treatment. We report a case of a 42-year-old diabetic patient with odynophagia, dysphagia, voice change, stridor and fever for a duration of four days. CT scan was performed in view of trismus and neck swelling as the initial provisional diagnosis of deep neck abscesses was made. The CT scan showed bilateral intratonsillar abscesses without involvement of other neck spaces. ‘Hot’ tonsillectomy was immediately performed after which the patient recovered well. Although uncommon, a high index of suspicion is required to diagnose intratonsillar abscess, especially in patient groups with high-risk factor e.g., diabetes mellitus with severe clinical complications.

Keywords: Intratonsillar abscesses, bilateral, adult
INTRODUCTION

Intratonsillar abscess can occur as one of the complications of acute tonsillitis, especially in patients who are immunocompromised. The underlying pathophysiology is likely due to the direct extension of crypt abscess into the tonsillar parenchyma. The true incidence of an intratonsillar abscess is still unknown and may be underestimated due to the small number of reported cases. The largest case series reported a 5 percent prevalence of intratonsillar abscess in 149 patients complicated with peritonsillar abscesses. Nevertheless, these cases were found to have unilateral presentations. We report the first case of bilateral intratonsillar abscess with stridor that presented to our emergency department.

CASE REPORT

A 42-year-old male of Malay nationality with known diabetes mellitus presented to our emergency department with a four-day history of odynophagia, dysphagia and muffled voice with noisy breathing. He had no history of fever, foreign body ingestion or neck trauma. The history of the recurrent sore throat was for the past five years which usually self-resolved without any medical therapy. The patient was diagnosed with diabetes mellitus and was on regular treatment for 25 years. His condition was complicated with other target organ damage including nephropathy and left diabetic foot ulcer, where a recent below-knee amputation was performed one year prior.

On examination, the patient was febrile (38°C) and appeared moderately dehydrated. Mild trismus and inspiratory stridor with mild tachypnea was present. Oropharyngeal examination showed bilateral enlarged and inflamed tonsils, which were almost “kissing”. Uvula and bilateral anterior pillars were red and swollen. The oropharyngeal wall was bulging and inflamed. The floor of the mouth was not raised. Flexible laryngoscopy showed normal looking hypopharynx and larynx with a patent airway. Examination of the neck revealed a bulging in the right submandibular region, which was soft and tender to touch. There were no other palpable neck swellings.

The initial clinical presumptive diagnosis was deep neck abscess, likely to be parapharyngeal in origin. Complete blood count revealed leukocytosis (total white cell count: 42x10^9/L). Urgent computed tomography (CT) of the neck was ordered to confirm and to assess the extent of the neck abscess. The CT scan revealed bilateral intratonsillar abscesses with the right tonsil demonstrating more collection compared to the left tonsil. There was no involvement of retro or parapharyngeal spaces (Figures 1–3).

Figure 1. Tonsillar lymphoid tissue is seen at the top. The squamous mucosa is ulcerated with the lower portion of the field containing acute inflammatory exudate. Stained with H&E.
Figure 2. Higher view of the acute inflammatory exudate comprising neutrophils. Specimen stained with H&E.

The patient subsequently underwent bilateral hot tonsillectomy 12 hours later. Awake intubation was successfully performed on the patient via transnasal fibreoptic-guided intubation. Intraoperatively, both the tonsils were noted to be very adherent. Multiple pockets of pus collection were seen mainly at the upper and middle pole of the tonsils. Bleeding was minimal. Both the inflamed tonsils were resected in piecemeal fashion by using tonsillar dissector and bipolar diathermy. Surgery was completed without any intraoperative or postoperative complications. The patient was started on intravenous cefuroxime and metronidazole. The patient had an unremarkable postoperative course and rapid improvement of his initial symptoms. He was discharged well on the third postoperative day with a one week course of oral cefuroxime regime. The pus obtained for culture and sensitivity reported the growth of two organisms: *Enterobacter cloacae* and methicillin-resistant *staphylococcus aureus* (MRSA). Histopathology (Figures 4–6) of the removed tonsils revealed predominantly reactive
Figure 4. Axial cut of contrasted CT at the level of the oropharynx showing collections of fluid (hypodensed area) within bilateral enlarged tonsils.

Figure 5. Coronal section of contrasted CT scan showing a huge collection at the right enlarged tonsil with ring enhancement seen (hypodensed area).
lymphoid tissue covered by stratified squamous epithelium. There were numerous follicles of varying sizes with reactive germinal centres seen. In areas, the squamous epithelium was ulcerated and covered by acute inflammatory exudate comprising neutrophils and necrotic material in an oedematous background.

**DISCUSSION**

The palatine tonsils are situated at the lateral portions of the oropharynx. Each tonsil is bound anteriorly and posteriorly by tonsillar pillars. The anterior pillar is formed by the palatoglossus muscle and posterior pillar is defined by the palatopharyngeus muscle. The medial surface of the tonsil is made up of multiple tonsillar crypts varying from 8–20 in number. The lateral surface (base) is covered by a fibrous sheath. The palatopharyngeus muscle also gives rise to a muscle bundle named as the tonsillopharyngeus muscle which is inserted into the fibrous septate of the tonsil and may function to compress it and to expel the content of the tonsillar crypts. Failure of the muscle to clear debris from tonsillar crypts may lead to inflammatory changes and tonsillar crypt abscess formation. Examples of occlusion of tonsillar crypts leading to intratonsillar abscess formation are seen in acute follicular tonsillitis and infectious mononucleosis. Two mechanisms have been postulated for the pathophysiology of intratonsillar abscess. It may occur via 1) the direct extension of crypt abscess into the tonsillar parenchyma or 2) seeding of bacteria throughout the tonsil via the lymphatic system or bloodstream.

The incidence of the intratonsillar abscess is not known. A search through the literature generated only two articles which report intratonsillar abscesses. Childs et al., reported seven (5%) cases out of 149 cases of peritonsillar abscess between the years 1982 to 1987. All the seven cases were of unilateral intratonsillar abscess. A single case which was recently reported in 2008 by Gan et al., also demonstrated a unilateral intratonsillar abscess. To date, our patient would be the first case reported to have intratonsillar abscess with a bilateral presentation.

The clinical presentations of intratonsillar abscess do not differ much from that of peritonsillar abscess. In the cases presented by Childs et al., none of the patients with intratonsillar involvement had voice change. Nevertheless, trismus was twice as common in the intratonsillar group as compared to the peritonsillar abscesses.
Management of any abscess will require early drainage. Many authors had preferred aspiration with a large bore needle as the initial treatment of intratonsillar abscesses.\textsuperscript{9,10} Wang et al., performed needle aspiration on one of the three reported cases of unilateral intratonsillar abscesses; incision and drainage, and conservative management on the other patients.\textsuperscript{9} Needle aspiration of intratonsillar abscess as the primary treatment has proven to be low-cost, less painful and a less invasive procedure which can be performed in the outpatient setting.\textsuperscript{9} Immediate tonsillectomy (“hot tonsillectomy” or tonsillectomy “à chaud”) was advocated in this case. This was due to the high risk of abscess recollection as the patient’s diabetic status was poorly controlled. Furthermore, the patient presented to the ED with impending airway collapse secondary to enlarged tonsils as simple aspiration techniques would not suffice to alleviate his symptoms. In fact, several comparative studies previously done have shown that immediate tonsillectomy has more advantages than just doing incision and drainage or interval tonsillectomy (tonsillectomy “à froid”).\textsuperscript{4–5} Some of the advantages were: 1) complete evacuation of pus and thus, prevention of recurrence; 2) prompt relief of symptoms such as trismus and pain; and 3) avoidance of a technically difficult procedure in interval tonsillectomy due to fibrosis of the tonsillar bed.

Much has been written about the bacteriology of the tonsils but it remains controversial and lacks in consensus as to what the main causative organisms are in tonsillar infection.\textsuperscript{6} 

\textit{Staphylococcus aureus} is the most common pathogen cultured in adults and children; \textit{Enterobacter} and \textit{Escherichia coli} in adults; and \textit{Streptococcus pyogenes} is more prevalent in children.\textsuperscript{6} Isolation of methicillin-resistant \textit{s. aureus} (MRSA) from the tonsillar core is not uncommon. One study reported the isolation of MRSA from 16 percent of tonsils removed because of recurrent Group A β-haemolytic \textit{streptococcus} (GABHS).\textsuperscript{7} A large scale study involving 833 adults described the multivariate risk factors of MRSA colonization in the aerodigestive tract,\textsuperscript{8} which included 1) prior hospitalization within one year (odds ratio [OR], 2.4); 2) injection or drug use (OR 9.7); and 3) prior endocarditis (OR 4.1). Our patient had a history of previous hospitalization within one year for below-knee amputation for the diabetic foot ulcer.

**CONCLUSION**

In conclusion, the accurate diagnosis of intratonsillar abscess continues to remain challenging for otolaryngologists. Since the detection of a peritonsillar abscess will require a positive aspiration of pus from the peritonsillar region using a large bore needle, negative aspiration is presumed to be peritonsillitis, thus would be treated conservatively. Considering the reported incidence of intratonsillar involvement is 5 percent,\textsuperscript{2} many cases could be missed which subsequently could lead to delays in treatment. Thus, we recommend that in any patient presenting with symptoms of acute tonsillitis with change in voice and trismus but who do not show the classical signs of unilateral peritonsillar abscess, a CT scan would suffice to establish a diagnosis so that timely surgical treatment can be offered to improve patient outcome.

**REFERENCES**

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