Case Report

Parapharyngeal Abscesses Caused by Group G Streptococcus

Shori Tajima, Takashi Anzai, Rina Matsuoka, Hiroko Okada, Takuma Ide, Mitsuhisa Fujimaki, Shota Kaya, Shin Ito, and Katsuhisa Ikeda

Department of Otorhinolaryngology, Juntendo University Faculty of Medicine, Tokyo, Japan

Correspondence should be addressed to Takashi Anzai; tanzai@juntendo.ac.jp

Received 25 July 2018; Revised 30 August 2018; Accepted 16 September 2018; Published 27 September 2018

1. Introduction

Deep neck abscess is a life-threatening infection that causes laryngeal edema and upper airway occlusion. The predominant bacterial species involved in this disorder is group A streptococcus. Group G streptococcus (GGS) constitutes the normal commensal flora of the human upper airway. Although rarely, it can cause pharyngitis, tonsillitis, and peritonsillar abscess. Here, we report a case of a woman with parapharyngeal abscess caused by GGS. A 56-year-old woman presented to the emergency department with complaints of sore throat and cervical swelling, and a diagnosis of parapharyngeal abscess was established. She had severe laryngeal edema, requiring urgent tracheostomy. Endoscopic incision and drainage of the abscess using a specially designed rigid curved laryngoscope was successfully performed. Since a rigid curved laryngoscope creates a wide viewing field and working space, it was useful for incision and drainage of the parapharyngeal abscess.

1.1. Case Presentation.

A 56-year-old woman presented to our emergency department with complaints of sore throat and cervical swelling. Her medical history included hypertension, habitual smoking, and occasional alcohol consumption. She developed a sore throat and visited a local clinic 3 days before presenting to our emergency department.

She was diagnosed with tonsillitis. Group A antigen test was negative, and she was administered amoxicillin 750 mg/day. However, 2 days later, she developed dyspnea, dysphagia, and neck stiffness. On arrival at our hospital, she had a severe sore throat and muffled voice and was drooling. Laryngeal fiberscopy revealed swelling of the caudal oropharyngeal mucosa on the right side and a severely swollen epiglottis and arytenoid region that caused upper airway occlusion. Her SpO2 was 97% on 2 L oxygen, and her body temperature was 37.4°C. Blood test results suggested strong inflammation (white blood cell count, 15.3 × 109/L; C-reactive protein, 27.6 mg/L).

We established a diagnosis of parapharyngeal abscess. Because of a high risk of suffocation, we first performed tracheostomy with the patient under local anesthesia. Enhanced computed tomography after tracheostomy revealed hypodense lesions at the left lateral and posterior pharyngeal walls (Figure 1). Incision and drainage of the abscess was performed with the patient under general anesthesia using a rigid curved laryngoscope.

Peritonsillitis containing mucus and pus from the posterior pillar was observed (Figure 2(a)). We incised and opened a part of the swollen posterior pillar and lateral and...
posterior pharyngeal walls, draining pus from these regions (Figure 2(b)). The operation was completed without any adverse events.

The patient was administered 3g/d meropenem as empiric therapy. On postoperative day 4, culture for aerobes and anaerobes revealed GGS and Parvimonas micra, respectively. Therefore, the antibiotics were changed to 4g/d piperacillin and 1.2g/d clindamycin. The recovery course was uneventful.

2. Discussion

GAS is a major microbial pathogen causing pharyngitis, peritonsillar abscess, and deep neck infection. In our case, GGS and Parvimonas micra were isolated from the pus. It is often the case that mixed aerobic and anaerobic bacteria can be identified through pus culturing. Tsai et al. reported that polymicrobial growth was observed in 57.39% of pus cultures [4]. Empirical antibiotics targeting both aerobes and anaerobes would be appropriate. However, considering GGS’s aggressive characteristic like GAS, GGS appeared to be an important pathogen of the parapharyngeal and concomitant peritonsillar abscesses that could cause potentially fatal upper airway occlusion. GGS is frequently present in the human pharynx and tonsils. Group C and G streptococci are two antigenic variants of the same organism, Streptococcus dysgalactiae subspecies equisimilis (SDSE). Genomic sequence homology analysis of GGS revealed that GGS was closest in sequence to GAS, with 72% similarity [5]. Virulence profile analysis of SDSE revealed that its genetic basis of disease propensity is shared with GAS, including the antiphagocytic M protein, streptolysin O, streptolysin S, streptokinase, and one or more pyrogenic exotoxins [6]. The burden of SDSE infection is comparable to that caused by invasive GAS infection [7]. We reviewed the bacteriology of the peritonsillar abscess from previous studies searching the PubMed database. There were 9 studies from 2014 to 2018. Two studies were excluded as the detailed Streptococcus sp. was not mentioned. As shown in Table 1, GGS or GCS has a prevalence of less than 5% [8–14]. Notably, GGS was
not detected using the rapid antigen test because of the lack of group A antigen, which is the target of these tests. Current pharyngitis guidelines focus only on group A streptococci and only recommend antibiotics. However, as we demonstrated, GGS also causes life-threatening diseases, such as a deep neck abscess. It is important for the primary care physician to consider carefully negative results.

During surgery, it is important to visualize the abscess lesion and create a sufficient working space. The intraoral approach using a self-retaining mouth gag with ipsilateral tonsillectomy can be used to access diseases in the parapharyngeal space [15]. However, a Davis gag can be used to visualize oropharyngeal structures around the oral cavity and tonsils but cannot be used to visualize the caudal oropharynx. Therefore, physicians should perform invasive surgery to remove the ipsilateral tonsil and approach the parapharyngeal space. We describe a novel method using a rigid curved laryngoscope for incision and drainage of a parapharyngeal abscess. This instrument was designed for laryngopharyngeal surgery under endoscopic vision [16, 17] (Figure 3). Recent case reports have described successful removal of a fish bone in the hypopharynx and drainage of retropharyngeal abscesses using a rigid curved laryngoscope [18, 19], which is useful for hypopharyngeal and oropharyngeal surgery. The blade is inserted into the pharynx and lifted forward. The oropharynx is well visualized. After exposing the whole oropharynx, the handle is attached to a holder fixed to the operating table. Because of a crooked line path, we used devices such as malleable high-frequency knives (KD-600®; Olympus, Tokyo, Japan) and malleable forceps (Laryngo FIT®; Karl Storz, Tuttingen, Germany). In our procedure, the rigid curved laryngoscope exposed the whole oropharynx including the caudal oropharynx. A conventional straight laryngoscope can be used to visualize the caudal oropharynx; however, it provides only a small visual and working space; therefore, it is useful for incision and drainage of a parapharyngeal abscess.

3. Conclusion

GGS is an important pathogen of deep neck abscesses. A rigid curved laryngoscope enables a wide viewing field and working space; therefore, it is useful for incision and drainage of a parapharyngeal abscess.

Ethical Approval

This case report was written in accordance with the Declaration of Helsinki.

Consent

Written informed consent was obtained from the patient for publication of this case.

Conflicts of Interest

The authors declare that there are no conflicts of interest associated with this manuscript.

Authors’ Contributions

ST, TA, and KI prepared and edited this manuscript. RM, HO, TI, MF SK, and SI contributed to the collection of data. TA and KI gave final approval for this version of the manuscript. All authors read and approved the final manuscript.

References


