CASE REPORT

Intramural oesophageal abscess: an unusual complication of tonsillitis

Natasha Amirraghi,¹ Lorna C Ewan,² Shayan Ansari,¹ Kevin Robertson²

¹Department of Otolaryngology, University Hospital Crosshouse, Kilmarnock, Scotland

²Department of General Surgery, University Hospital Crosshouse, Kilmarnock, Scotland

Correspondence to

Kevin Robertson,
Kevin.Robertson@aapct.scot.nhs.uk

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SUMMARY

Tonsillitis is an extremely common condition, usually it is self-limiting, of viral origin, and managed conservatively in general practice. Rarely patients require inpatient management, usually when bacterial infection is present or when the cause is virulent organisms such as Epstein Barr virus. Complications can be divided into non-suppurative; sepsis, scarlet fever, rheumatic fever, glomerulonephritis and Lemierres disease, and suppurative; quinsy, parapharyngeal abscess and retropharyngeal abscess, respectively. Anecdotaly, there is concern that modern medical practice that counsels vigilance against overuse of antibiotics, could lead to increased complications of tonsillitis. We report a case of an otherwise healthy man who presented with dysphagia, odynophagia and neck pain following a sore throat. Despite antibiotic treatment he developed an intramural oesophageal abscess, to our knowledge, an unreported complication of tonsillitis.

BACKGROUND

Though presentation was typical of parapharyngeal abscess, the development of the intramural oesophageal abscess was a late development that was not expected.

With hindsight, early surgical drainage might have prevented it but an initial good response to antibiotic treatment masked development of this life-threatening complication.

We have learnt much from this case and wish to document it in the literature so lessons can be learnt from our experience.

CASE PRESENTATION

A 61-year-old retired man presented with sore throat, right neck pain, dysphagia, fever and 'hot potato' voice. His throat had been sore for a few days but the additional symptoms had developed over the preceding 12 hours.

His medical history included Epilepsy and Meniere's disease. He was a non-smoker with no family history.

Besides the features noted, he was tachycardic, had mild stertor and oedema over the anterior neck but there was no stridor. On intraoral examination mild inflammation of the palatine tonsils was noted but no profuse exudate and no asymmetry.

Given the lack of intra oral findings, a flexible nasendoscopy was performed. This demonstrated a right parapharyngeal swelling.

INVESTIGATIONS

Admission blood work demonstrated a white blood cell count (WCC) of $21.3 \times 10^9/L$ and a C reactive protein (CRP) of 419 mg/L. Blood cultures were obtained but ultimately there was no growth in either bottle.

CT neck and chest with contrast showed a right sided palatine tonsillar abscess (2.6×1.8 cm) [figure 1](#), with some inflammatory change extending in the retropharyngeal space to the thoracic inlet but no definite abscess identified at this level. In this initial scan the oesophagus was noted to be patulous and there were a few pockets of gas noted to the right of the lower cervical oesophagus but there was no significant abnormality in the chest.

The following day there had been spontaneous drainage of some pus from the mouth, it was decided to obtain further imaging in the form of an MRI of the neck with contrast. This correlated with the admission CT scan demonstrating oedematous tissues in the right parapharyngeal and posterior pharyngeal walls but also commented on resolution of the right palatine tonsil collection.

Forty-eight hours later the patient developed chest pain, tachycardia and shortness of breath. An ECG showed sinus tachycardia, an echocardiogram was normal and a CT pulmonary angiogram demonstrated a small non-occlusive thrombus in the superior segment of the left lower lobe. This scan demonstrated no change in the oesophagus from previous imaging and small areas of consolidation at both lung bases with a small left pleural effusion.

On day 9 of conservative treatment the patient was markedly improved, WCC had reduced to $12.4 \times 10^9/L$ and CRP to 29 mg/L, and plans were made for discharge however later that evening he suddenly became septic. Repeated blood work showed rebound of WCC to $34.8 \times 10^9/L$ and CRP of 324 mg/L.

At this point a further contrast CT thorax demonstrated an intramural oesophageal collection extending to the level of the gastro-oesophageal junction ([figures 2 and 3](#)).

It was decided this required urgent surgical management and a joint upper gastrointestinal (GI) and otolaryngology (ENT) surgery approach was arranged to drain the neck, mediastinum and oesophagus. Prior to surgery, a gastroscopy was performed which demonstrated two oesophageal perforations, the largest is shown in [figure 4](#).

Throughout the admission microbiology samples were obtained from throat swabs, blood cultures,

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Figure 1 Contrast CT showing parapharyngeal abscess tracking to retropharyngeal space (arrow). Transverse section of neck.

urine and sputum cultures, but none grew organisms. However, intraoperative samples of pus were obtained and a number of organisms were identified including *Lactobacillus rhammosis*, *Candida*, *Enterococcus faecalis*, *Enterobacter* and Coagulase negative streptococcus. The majority of these organisms were sensitive to amoxicillin and the others had no sensitivity reports.

DIFFERENTIAL DIAGNOSIS

On admission the differential diagnosis of para-pharyngeal abscess, retro-pharyngeal abscess, Lemierre's disease and mediastinitis were all considered.

TREATMENT

Initial treatment was conservative. Sepsis management included intravenous fluid resuscitation, intravenous antibiotics (ceftriaxone and metronidazole to give empirical broad-spectrum cover), anti-pyrexials and end organ function monitoring. Nasogastric feeding was established and the patient kept nil by mouth.

Anticoagulation was commenced on day 4 for the small pulmonary embolism.

At day 7 sepsis had resolved; blood work was normalising and symptoms had almost resolved. Sterile water sips were tried and, shortly thereafter, soft diet.

On the evening of planned discharge, the patient developed chest pain and signs of sepsis recurred. Repeat CT imaging demonstrated the intramural oesophageal abscess and surgery was planned.

A combined approach was undertaken. The head and neck team opened the right side of neck to find fibrosed and oedematous fascial planes but no neck collection. Drains were inserted nonetheless. The upper GI surgical team performed endoscopy and thoracotomy (right lateral approach as for oesophagectomy), allowing access to drain the intramural collection. Initial incision released copious frank pus and revealed a 'dissected'

Figure 2 Contrast CT showing intra-mural oesophageal abscess (arrow). Transverse section lower chest.

Figure 3 Contrast CT showing intra-mural oesophageal abscess (arrow). Coronal section of chest.

plane between oesophageal muscle and the oesophageal mucosal layer (figures 4 and 5). This cavity was fully opened to allow thorough drainage revealing a tube of oesophageal mucosa (figure 6). An intramural drain was secured to the oesophageal muscle the edges of which were approximated over it. A pleural drain was also inserted.

A nasogastric (NJ) feeding tube was placed and secured with a bridle and intravenous proton pump inhibitors commenced to minimise oesophageal exposure to gastric acid.

Initial postoperative care was in the intensive care unit. He was extubated the day following surgery and was stepped down to surgical high dependency unit 48 hours later. Intravenous antibiotics were changed to vancomycin and metronidazole with anti-fungal (fluconazole) added, all as recommended by microbiology.

NJ feeding was continued until the oesophageal perforations healed. NJ tube blockage mandated a second endoscopy on day 14 that confirmed healing of the oesophageal perforations (figure 7). Diet was slowly reintroduced.

OUTCOME AND FOLLOW-UP

Despite the critical nature of this infection the patient recovered quickly after surgery and was discharged on postoperative day 20. He was eating normally but still had some thoracotomy wound pain. He was seen at clinic 1 month after discharge and was regaining weight and enjoying a normal diet.

DISCUSSION

Serious and rare complications of tonsillitis are well described in the literature.¹⁻³ Mediastinitis as a consequence of these complications has been described numerous times,⁴⁻⁶ however, intra-mural oesophageal abscess as a result of tonsillitis has not, to our knowledge, been documented.

Figure 4 Endoscopic view of oesophagus showing true lumen separated from the abscess cavity by a mucosal bridge (arrow).

Figure 5 Mediastinal pleura opened (between stay sutures) into the abscess cavity to allow evacuation of pus.

There is a description of an intramural oesophageal dissection without perforation or abscess, secondary to pharyngitis, described in 2010 by Benatta *et al.*⁷ Their patient underwent endoscopic division of the false lumen to treat dysphagia which persisted after conservative management of pharyngitis.

In 1965 a case report by Lichter and Borrie in New Zealand,⁸ described two instances of intramural oesophageal collection, however both of these appeared to happen after direct trauma to the oesophageal mucosa leading to a subtotal perforation and subsequent abscess formation.

The presumed aetiology in our patient's case is tracking of the presenting parapharyngeal abscess into the mediastinum and the submucosal layer of the oesophageal wall, with subsequent abscess and perforation. It is not clear if the extensive intramural abscess cavity identified at surgery developed first and drained spontaneously to the gut lumen, or, if a smaller abscess perforated into the lumen allowing opportunistic infection of the submucosal plane.

Non-surgical, antibiotic only treatment of parapharyngeal abscess is reported and our patient initially responded well, clinically and radiologically, but it must be conceded that early surgical drainage might have prevented the subsequent mediastinal complications.

Oesophageal intramural collections are rare and most often iatrogenic following instrumentation, treatment of varices and anticoagulation. More often the dissection is partial rather than circumferential, with only two circumferential cases described.^{7,9}

Once abscess formation occurs adequate drainage becomes a priority. This can be managed endoscopically but, perhaps,

Figure 6 Full length of abscess cavity opened revealing the oesophageal mucosal tube (M).

Figure 7 Healing oesophageal perforation.

is more definitively achieved by open surgery. Complications accompany either approach; such as, stricture formation with the endoscopic approach,⁷ and thoracotomy wound pain after open surgery.

In conclusion our case is unique, in that the parapharyngeal abscess resolved with antibiotic treatment but the same treatment masked signs of oesophageal intramural abscess formation as a consequence of descending mediastinitis.

Learning points

- ▶ Although usually self-limiting, tonsillitis can be a life-threatening condition.
- ▶ Antibiotic treatment of parapharyngeal abscess can mask serious sequelae of infection.
- ▶ A multi-disciplinary approach to unusual presentations of common conditions should be considered.

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