Oesophageal pyomyositis in an intravenous drug user

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Abstract

An inflammatory or infectious disease of the oesophagus occurring in tissue layers beneath but sparing the mucosa may pose a diagnostic challenge. Bacterial pyomyositis has been previously reported occurring mostly in the skeletal muscle. Pyomyositis involving the gastrointestinal tract is extremely rare, and may easily be misdiagnosed due to its nonspecific clinical features. We report a case of an intravenous drug user who presented with oesophageal pyomyositis. Early computed tomography facilitated accurate diagnosis. Adequate drainage followed by antibiotic treatment was effective and the oesophagus was preserved. To the best of our knowledge, this is the first report of a case of oesophageal myositis in an intravenous drug user.

Keywords: Oesophagus • Pyomyositis

CASE REPORT

A 46-year old man with a history of heroin addiction and hepatitis C carrier status presented to our hospital with sore throat, dyspnoea and general malaise. A normal body temperature of 36.7°C, pulse rate 130/min, respiratory rate 26/min and blood pressure 96/67 mmHg were recorded on admission. Physical examination revealed no evidence of throat or neck infection. On percussion, dullness of the bilateral lower chest was found. The patient had had a perforated peptic ulcer and had received primary closure 20 years previously. One year prior to admission, the patient received surgical drainage for a right sub-hepatic abscess and had developed an abdominal enterocutaneous fistula since then.

After admission, laboratory results showed a white blood cell count of 27 100/mm3, with a predominance of 89% neutrophils. Computed tomography (CT) performed to examine the site of previous intra-abdominal abscess revealed swelling of the entire intrathoracic oesophagus (Fig. 1). Concurrent presence of empyema was also noted (Fig. 1). Although the patient denied symptoms of dysphagia, we proceeded to perform oesophagography. We found neither abnormality nor leakage in the oesophagus. Preoperatively, oesophagoscopy was performed, which showed no oesophageal mucosa tear.

Based on these findings, the patient underwent an emergent right thoracotomy. During the operation, the posterior mediastinal pleura was opened and pus along the whole oesophagus was drained. Chest tubes were placed in the bilateral pleural cavity for further drainage. Postoperatively, the patient was transferred to the intensive care unit for further care. Escherichia coli was identified in the blood culture as well as the pus culture. Histological result of the oesophageal smooth muscle biopsy revealed a necrotic change (Fig. 2). Intravenous antibiotic treatment with ciprofloxacin was administered according to an antibiotic sensitivity test. The patient was under nil per os for 17 days post-surgery to prevent perforation of the oesophagus, after which a soft diet was permitted uneventfully. Repeat CT at 28 days post-operation revealed necrosis of the oesophageal wall with intramural air-fluid presence, and in some places, only the mucosa remained. The patient was discharged 31 days after the operation and was followed up in the outpatient clinic. The follow-up CT scans 2 months after the operation showed a dramatic improvement with the abscess reduced and the intramural air in the oesophagus cleared up. The patient was followed up for 6 months and was well except for the persistence of his previous abdominal enterocutaneous fistula.

DISCUSSION

Pyomyositis is an intramuscular infection that, by definition, is not related to a contiguous site of infection or penetrating trauma [1]. Although descending or ascending mediastinitis from deep neck infection or an infection from an abdominal source could also be routes for bacterial invasion, the muscular layer of the oesophagus is seldom involved [2]. We found that the mucosa of the oesophagus was intact in this patient. There was neither deep neck infection nor abdominal abscess at the time of pyomyositis. Therefore, this infection most likely occurred from haematogenous or lymphogenous spread because the patient was an intravenous heroin drug abuser and had a hepatic abscess previously.

Bacterial pyomyositis occurs mostly in the skeletal muscle [1, 3, 4]. Iliopsoas muscle and muscles of extremities are the commonly affected sites. In the case of iliopsoas pyomyositis, an adjacent
infectious lymph node is the most common source [3]. Given that no enlarged lymph node was detected in the chest or abdomen on CT scan in this patient, lymphogenous spread was less likely involved.

Human immunodeficient virus (HIV)-infected patients and intravenous drug users are reported to have a higher incidence of pyomyositis [3]. *Staphylococcus aureus* is the leading cause of pyomyositis, although *E. coli* and other bacteria may also be involved [1, 3, 4]. HIV, sexually transmitted disease and viral hepatitis are often associated with intravenous drug use [4]. There is an association between intravenous drug use or immunocompromised status and pyomyositis [5]. Skin and soft tissue of injection sites are the most common sites of pyomyositis through repeated introduction of non-sterile fluids [3–5]. Necrotizing fasciitis and descending necrotizing mediastinitis have also been reported in intravenous drug use [2].

The treatment of choice for pyomyositis is early surgical drainage and antibiotic treatment [1, 3, 4]. Antibiotics alone may be adequate if intervened early enough. The mortality rate is reported to be approximately 9%, and is higher in HIV-infected patients (12%) [1]. In this case of pyomyositis of the oesophagus, early adequate drainage with antibiotic treatment was effective and the oesophagus was preserved.

Primary pyomyositis of the oesophagus is very rare and has not been previously reported in the literature. The diagnosis of pyomyositis should be considered in patients with signs and symptoms of infection, especially in intravenous drug users. Early imaging studies involving CT scan or magnetic resonance imaging should be performed to identify the infection site. Our report showed that adequate drainage and antibiotic treatment for oesophageal pyomyositis in a timely fashion not only increased the likelihood of preserving the oesophagus, but also reduced mortality and morbidity.

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**REFERENCES**


Figure 1: Preoperative computed tomographic scan. Oesophageal abscess and empyema from thoracic inlet (A) to the oesophago gastric junction (B).

Figure 2: Photomicrograph (H&E stain ×200). Acute necrotizing inflammation with a few residual smooth muscle bundles (arrow) of the oesophagus.