Laparoscopic Management of Abdominopelvic Abscesses in Tropical Pyomyositis

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ABSTRACT

Tropical pyomyositis is a suppurative infectious disease of skeletal muscles. The most common causative organism is *Staphylococcus aureus*. Penicillin-resistant strains are frequently encountered. Abscesses may develop in muscle groups or body cavities remotely located from one another. We report a case of tropical pyomyositis presenting as a suppurative process in the left foreleg. Further workup, including CT scanning, demonstrated large, multi-loculated intraabdominal and pelvic abscesses. The abdominal and pelvic components were managed by laparoscopic exploration and drainage. This is the first known report of laparoscopic management of abdominopelvic abscesses associated with tropical pyomyositis.

Key Words: Laparoscopy, Tropical Pyomyositis, Abdominopelvic abscess.

INTRODUCTION

The initial description of pyomyositis is credited to Scriba, who published his report in 1885.\(^1\) This disease process presents frequently in tropical regions of the Pacific, Asia, Africa, the Caribbean, and South America and is now commonly called tropical pyomyositis (TP). Reported incidences of TP in tropical latitudes are as high as 1 case per 1000 persons per year.\(^2\) TP accounted for 3% to 4% of all surgical admissions in a series from an African hospital.\(^3\)

TP is a suppurative infectious disease that involves a single skeletal muscle or multiple skeletal muscles in the absence of trauma to the overlying skin. Infections of muscle caused by direct penetrating injuries, adjacent osteomyelitis, or those due to active parasitic infestation by organisms like worms are excluded.\(^4\)

This case report describes the management of a young patient presenting with TP in the left foreleg. Further workup revealed the presence of large, multi-loculated intraabdominal and pelvic abscesses in addition to the muscular focus. The intraabdominal and pelvic abscesses were managed by laparoscopic exploration and drainage. To the best of our knowledge, this is the first reported case describing the use of laparoscopic surgical techniques in the management of TP.

CASE REPORT

A 14-year-old boy was referred from American Samoa for treatment of a large abscess involving the muscles of the left foreleg. At admission, the child was found to be well nourished and well developed and in no acute distress. Physical examination demonstrated swelling and tenderness of the left foreleg overlying the anterior muscle compartment. No apparent trauma was present to the skin in this area, and the remainder of the physical examination was normal. Computed tomography (CT) scan demonstrated a fluid collection, consistent with an abscess, in the anterior compartment of the left foreleg.

The patient also complained of abdominal pain and underwent a CT scan of the abdomen and pelvis. This study demonstrated a large fluid collection extending from the dome of the bladder to the inferior border of
the greater curvature of the stomach (Figure 1). A second collection was noted in the lesser sac, extending toward the splenic hilum (Figure 2). Due to the extent of the abscesses, and their proximity to the colon, small bowel, spleen, and other structures, it was decided that surgical drainage would be preferable to image-guided percutaneous drainage.

We planned to begin laparoscopically and to convert to a laparotomy if laparoscopic drainage was not feasible. We inserted a 10-mm trocar at the superior aspect of the umbilicus, using the Hasson technique. The abdomen was insufflated with carbon dioxide to a pressure of 15 mm Hg. Numerous adhesions of the omentum to the small bowel and anterior abdominal wall were noted, and no free pus was encountered initially. A 5-mm trocar was placed in the right upper quadrant of the abdomen, which was relatively free of adhesions. Adhesiolysis was performed with sharp and blunt dissection through this trocar. When the abdominal wall had been adequately cleared, a 10-mm trocar was placed in the right lower quadrant and a 5-mm trocar in the left lower quadrant. Further omental adhesions to the abdominal wall were lysed in the pelvis. As we approached the area of the bladder, we inserted a 7.5-MHz laparoscopic ultrasound transducer into the abdomen and identified a large, loculated fluid collection superior to the bladder (Figure 3). This was opened sharply and was identified as the main abscess cavity, filled with a large collection of purulent material (Figure 4). A sample of the purulent material was suctioned into a Lukens trap through a suction-irrigation instrument and was sent for Gram’s staining and culture and antibiotic sensitivity studies. This abscess cavity was widely opened, irrigated, and suctioned until all purulent material was removed.

Next, the lesser sac was entered by dividing the gastrocolic ligament with electrocautery. The second abscess cavity was identified near the splenic hilum, with the aid of the laparoscopic ultrasound transducer, and was opened sharply (Figure 5). The purulent material in this

Figure 1. CT scan demonstrating fluid-filled collection inferior to greater curvature of stomach.

Figure 2. Second fluid collection noted in lesser sac.

Figure 3. Laparoscopic view of pelvic abscess capsule.
cavity was irrigated and suctioned out. A small capsular tear was produced on the inferior pole of the spleen, which was controlled with electrocautery.

Fully perforated, 10-mm closed suction drains were left in each of the abscess cavities and were introduced through the existing 5-mm trocar sites. The trocars were removed and the pneumoperitoneum was released. The abdominal wall fascia at the 10-mm trocar sites was closed in standard fashion. Attention was then turned to the left foreleg, which was incised and drained. All purulent material was aspirated and areas of necrotic muscle debrided.

The patient recovered quickly and resumed oral food intake on the first postoperative day. His cultures revealed a heavy growth of *Staphylococcus aureus*. A follow-up abdominal and pelvic CT scan 1 week after the operation demonstrated resolution of the abscesses. The closed suction drains had initially produced significant amounts of serosanguinous fluid. The drains were removed on postoperative days 8 and 10. Shortly thereafter, the patient was discharged from the hospital and sent home to American Samoa.

**DISCUSSION**

TP is a disease of the young with a slight male predilection. It is endemic in tropical latitudes and is encountered rarely in temperate climates. The first case of TP in the United States was reported in 1971. Since then, 50 to 60 additional cases have been reported. Many of these reports have described patients recently returned from travel in the tropics, persons with diabetes, or immunocompromised persons. In contrast to cases reported in temperate climates, those from endemic tropical areas do not appear to involve immunocompromised individuals.

The pathogenesis of TP is incompletely understood. Normal skeletal muscle is very resistant to infection. However, if skeletal muscle is damaged, it may become susceptible to hematogenous bacterial invasion. Mechanisms of damage that are implicated include trauma, viruses, parasites, spirochetes, and malnutrition. The offending organism is almost always *Staphylococcus aureus*, and frequently involves a penicillin-resistant strain.

TP most commonly affects large muscles like those of the truncal, gluteal, or quadriceps groups. Infection of upper extremity muscles like the deltoid and triceps has been described. One of the most frequently affected muscles, especially in children, is the psoas. It is possible in this case that the psoas muscle was the primary source of infection and that the abdominopelvic abscesses represented direct extension of this process. This can only be speculated upon because of the advanced status of suppuration at the time of presentation.
As travel from the United States to exotic locales and immigration of persons from tropical countries to the United States increases, it is likely that the number of cases of TP seen and treated by American surgeons will increase. Salient features of the management of these patients include adequate incision and drainage of abscesses and suspicion of multiple remote sites of involvement.

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