

Infected Urachal Remnant Causing Necrotizing Fasciitis of the Lower Abdominal Wall: Case Report and Review of Literature

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Citation

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Abstract

Necrotizing fasciitis (the clinical syndrome) was described in detail by Meleny in 1926 (1). The actual term "Necrotizing Fasciitis" (NF) was introduced by Wilson in 1952, when he observed a rapidly progressive inflammation and necrosis of subcutaneous tissue, superficial fascia and the superficial part of the deep fascia with variable presence of cutaneous gangrene (2).

The urachus is an embryologic structure that usually undergoes obliteration in utero. In acquired urachal disorders, the urachal canal closes post natally, and then partially re-opens later in life (3). Anomalies are usually asymptomatic but may present in adult life as infection of the remnant (3, 4).

We report a case of necrotizing fasciitis complicating a necrotic and infected urachal remnant in an adult. This complication is highly unusual and to our knowledge only 1 other case in an adult has been described in the world literature (3).

CASE REPORT

A 47 year old man presented with a 6 day history of lower abdominal pain. The pain was progressively worsening and characterized as sharp and localized to the bilateral lower quadrants of the abdomen. Pertinent medical history included hypertension and schizophrenia. Physical examination revealed a significant tachycardia (143/min) with tenderness, guarding and rebound tenderness in both lower quadrants of the abdomen. Laboratory analysis showed a significant bandemia, lactic acidosis and elevated CPK levels (1309u/l). CT scan of the abdomen and pelvis showed extra luminal air anterior to the bladder and along the anterior pelvic wall (figures 1, 2).

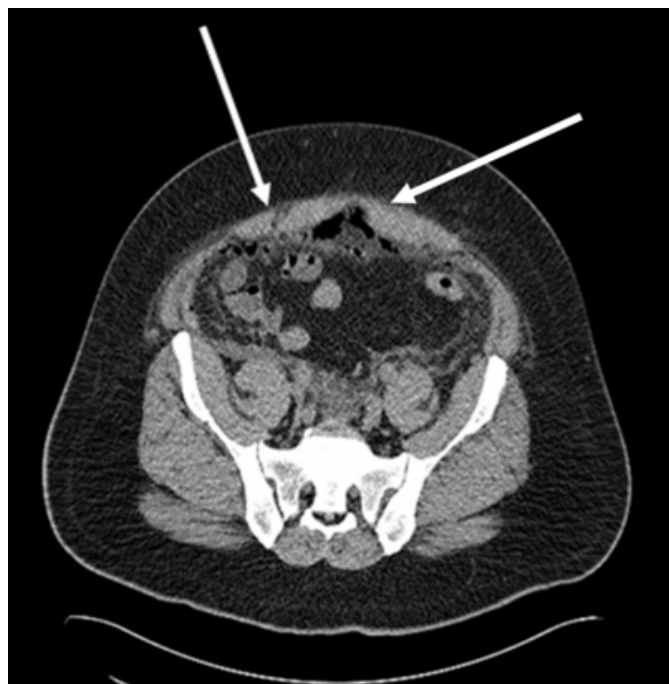
Figure 1

Figure 1: Free Air In anterior pelvic wall



Figure 2

Figure 2: Air in anterior abdominal wall



After resuscitation and starting broad spectrum antibiotics, the patient was taken to the operating room for exploratory laparotomy. Necrotizing fasciitis of the abdominal wall (rectus muscle) as well necrosis of the left pelvic gutter area were noted. Pus was also found within the anterior abdominal wall and was drained (Pictures 1 and 2). The necrotic muscle was debrided. No other intra-abdominal pathology was found to be a source for the necrotizing fasciitis.

Figure 3

Picture 1

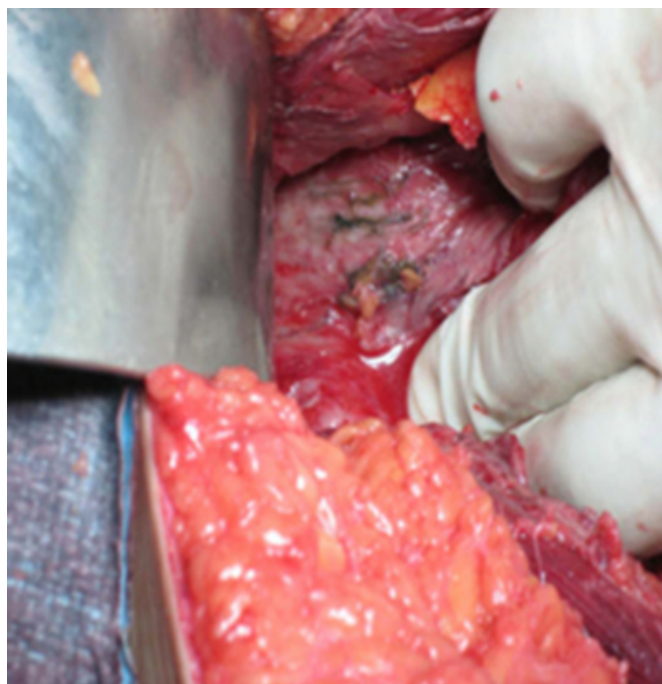
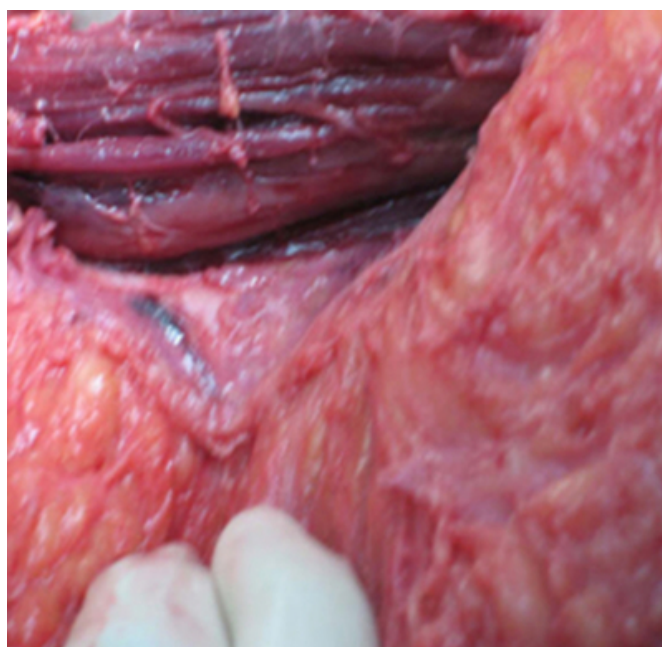


Figure 4

Picture 2



Post-operatively the patient was transferred to the ICU for further resuscitation. Despite aggressive treatment with systemic antibiotics, resuscitation and optimal supportive care the patient progressed into irreversible septic shock and expired.

Autopsy studies revealed cardiomegaly, hepatomegaly and splenomegaly consistent with septic shock. Necrotizing fasciitis along with lower abdominal wall purulence was noted. Further pathologic evaluation revealed an infected and necrotic urachal remnant. Post mortem wound cultures and intra-operative wound cultures revealed group B streptococcus, *E. coli* and streptococcus as the primary pathogens.

DISCUSSION

Necrotizing fasciitis complicating an urachal remnant has been described primarily in children; only one other case has been described in adults (3). In that case a 34 y/o female presented with a much shorter timeline of symptoms. The case clearly showed a patent urachal remnant during pre-operative work-up. Our case failed to show any such pathology, showing only necrotizing fasciitis of the anterior abdominal wall, specifically the rectus abdominus muscle and fascia. Our patient's autopsy findings of a necrotic/infected urachal remnant revealed the etiology of the necrotizing fasciitis.

Our case demonstrates the aggressive nature of the disease process. Mortality rates for necrotizing fasciitis have been quoted to be ranging from 6-76% (3). Streptococcal species have been noted to be one of the causative pathogens approximately 55-60% of the cases (5). Polymicrobial infection has been noted in 50-81% of reported cases of necrotizing fasciitis (5, 6). Our patient had a polymicrobial infection including 2 streptococcal pathogens. Further review of the literature found that the only clinical characteristics which showed differences between survivors and non-survivors with necrotizing fasciitis were: (1) Time from admission to operative (OR within 24 hours had favorable outcomes as compared to longer times to OR) (2) Percentage body surface area involved (less body surface area involved resulted in improved outcomes) (3) acidosis (the absence of metabolic acidosis resulted in better outcomes) (4) peripheral vascular disease (the absence of PVD resulted in better outcomes) (5) number of comorbid

illness (2 or more comorbid illness resulted in higher mortality) (6) Age (age greater than 55 resulted in higher mortality). Our patient was operated within 24 hours of arrival into the ER. The body surface area involved was less than 5%. The patient did present with acidosis. Peripheral vascular disease was not readily evident. Our patient did have 2 comorbid illnesses and his age was less than 55. Despite having few factors which increased his mortality risk and very aggressive therapy, this patient rapidly progressed into septic shock and expired.

In summary, we present the case of a necrotic urachal remnant which caused a fatal necrotizing fasciitis. Urachal pathology should be considered when lower abdominal wall fasciitis (with all the attendant findings) presents in the absence of other intra-abdominal pathology (eg. Appendicitis, diverticulitis). A history of cystitis may or may not be evident. If such a diagnosis is entertained, therapy should include more aggressive debridement of the lower midline anterior abdominal wall. The predominance of streptococcal and polymicrobial infection should be treated with broad spectrum antibiotic coverage with special emphasis on streptococcal coverage. Early, aggressive debridement & Broad spectrum antibiotic coverage with aggressive supportive care has helped to reduce the mortality rate in NF (5, 6).

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