

Case report



Neglected Acute Appendicitis Complicated by Multiple Metastatic Abscesses in a Young Nigerian Adult: A Case Report

Ukwubile U L¹, Mukoro D G¹, Daniyan M¹, Jimoh A O¹, Ahmad A¹, Orinya A²

1 Division of General Surgery, Department of Surgery, Ahmadu Bello University Teaching Hospital, Zaria, Nigeria.

2 Department of medical microbiology and parasitology, Ahmadu Bello University Teaching Hospital, Zaria, Kaduna.

Corresponding author: Ukwubile U. Linus | **Email:** doc.ukwubile@gmail.com | **ORCID:** <https://orcid.org/0000-0002-318-3473> | **Phone:** 08068627359

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ABSTRACT

Delayed presentation of acute appendicitis remains prevalent in resource-limited settings and is associated with several complications, including rare metastatic infections. We report a case of neglected acute appendicitis complicated by multiple metastatic abscesses in a young Nigerian adult. A 21-year-old man presented with a two-week history of right iliac fossa pain that progressed to generalized abdominal pain, respiratory distress, and sepsis following prolonged self-medication. Evaluation revealed left-sided empyema thoracis and generalized peritonitis. He underwent urgent closed tube thoracostomy, followed by exploratory laparotomy, which revealed a ruptured appendix, intraperitoneal contamination and an anterior abdominal wall abscess. Postoperatively, he developed scrotal abscess. Cultures from multiple sites yielded multidrug resistant *Escherichia coli* and *Acinetobacter baumannii*. Culture-directed antibiotic therapy combined with appropriate surgical interventions and nutritional rehabilitation, led to full recovery. This case highlights the grave consequences of delayed appendicitis and emphasizes the need for multidisciplinary care, and sensitivity-guided antimicrobial therapy in metastatic abscess.

Keywords: Acute appendicitis; Metastatic abscess; Empyema thoracis; Perforated appendix; Antimicrobial resistance.

Introduction

Acute appendicitis remains one of the most frequently encountered surgical emergencies worldwide¹. It predominantly affects young individuals, with about 90% of cases occurring in those under 40 years of age.^{2,3} Diagnosis is largely clinical, supported by validated scoring systems and radiological imaging.^{4,5} Abdominal ultrasonography and computed tomography have become increasingly valuable in improving diagnostic accuracy, particularly in equivocal cases, women of child-bearing age, and patients with suspected complicated appendicitis.^{5,6}

Surgical intervention remains the mainstay of treatment; however, non-operative management with antibiotics has gained increasing acceptance in carefully selected patients in recent years.^{7,8} Regardless of the treatment modality, early and appropriate management is central to favorable outcomes.^{2,9}

Delayed presentation is still common, especially in resource-limited settings, and is often related to work or school commitments, financial constraints, anxiety, fear of surgery, and reliance on over-the-counter or herbal medications. Perforation is the most feared complication of acute appendicitis and may result in a cascade of adverse outcomes including appendiceal mass or abscess, generalized peritonitis, sepsis, adhesive intestinal obstruction, infertility, metastatic abscess formation, and death.^{9,10}

Metastatic abscess formation is a rare but severe complication of acute appendicitis. These infections are typically polymicrobial, although highly virulent organisms such as *Klebsiella pneumoniae* have been implicated.¹⁰ Immunosuppressive conditions, including diabetes mellitus, further increase the risk. Management is often complex and requires an aggressive multidisciplinary approach.¹⁰ We report a case of a 21-year-old male whose neglected appendicitis resulted in generalized peritonitis, empyema thoracis, anterior abdominal abscess and a scrotal abscess, and highlighting the importance of coordinated multidisciplinary management.

Case Report

A 21-year-old man undergoing military recruitment training presented with a two-week history of sudden-onset, colicky

right iliac fossa pain that worsened by walking and temporarily relieved by analgesics. No prior history of similar pain. Nine days later, the pain became severe and generalized, accompanied by abdominal distension. He also developed fever, anorexia, nausea, generalized weakness, and constipation, but no vomiting.

Three days prior to presentation, he developed cough, pleuritic chest pain, orthopnea, and dyspnea at rest. There was no history of paroxysmal nocturnal dyspnea, drenching night sweats nor contact with a chronically coughing individual. At the onset of illness, he self-medicated with multiple drugs, including antibiotics and analgesics, purchased over the counter, in order to keep symptoms in abeyance and remain active during training. His symptoms, however, worsened progressively, necessitating presentation to a clinic and subsequent referral to our hospital.

On admission, he appeared acutely ill, lethargic, febrile (38.2 °C), dehydrated, cyanosed, and in obvious respiratory distress. He was malnourished with a body mass index of 16.5 kg/m². He was tachypneic with a respiratory rate of 32 cycles per minute and oxygen saturation of 88–90% on room air. He had reduced left hemi-thorax expansion, stony dull percussion notes and diminished vesicular breath sounds over the left middle and lower lung zones. Diagnostic left thoracentesis yielded purulent fluid. His pulse rate was 130bpm with blood pressure of 130/60 mmHg.

Abdomen was distended with edema and crepitus over the right lower anterior abdominal wall. Generalized tenderness with guarding, rigidity, and absent bowel sounds were noted. Digital rectal examination revealed a full and tender recto-vesical pouch.

A chest radiograph demonstrated homogeneous opacity in the left hemi-thorax, consistent with empyema thoracis (Figure 1). Abdominal ultrasonography revealed intraperitoneal fluid collection and non-peristaltic bowel loops; the appendix was not visualized. The blood test were hematocrit of 42%, normal serum electrolytes and urea, hyperglycemia of 13.1mmol/L and positive hepatitis B surface antigen. Hepatitis C virus and HIV tests were negative.

He was commenced on oxygen therapy and underwent immediate left closed tube thoracostomy drainage [CTTD], which resulted in marked improvement in respiratory

distress. Following optimization, exploratory laparotomy was performed the next day. Intra-operative findings included approximately 1500 mL of purulent intraperitoneal fluid, a ruptured appendix, and a subcutaneous abscess in the right anterior abdominal wall (Figure 2). Appendectomy, drainage of intra-abdominal and anterior abdominal wall abscesses, and thorough peritoneal lavage were performed. The linea alba was closed, while the skin and subcutaneous tissues were left open for regular wound care.

Immediate postoperative treatments included intravenous fluid, ceftriaxone, clindamycin, and analgesics. Fourth postoperative day, respiratory function had improved significantly with oxygen saturation of 96–98% on room air, and oxygen therapy was discontinued. However, he developed purulent discharge from the abdominal wound, fascia dehiscence and swinging pyrexia. Pleural fluid culture yielded *Actinobacter Boumanii*, *Escherichia coli* and *Streptococcus pneumoniae*, which were sensitive to amikacin, levofloxacin, and cotrimoxazole, but resistant to ceftriaxone, ciprofloxacin, and cefoxitin. GeneXpert testing for *Mycobacterium tuberculosis* was negative.

Antibiotic therapy was adjusted to levofloxacin, cotrimoxazole, and clindamycin based on sensitivity results. Regular wound dressing was intensified with the use of pure honey after cleansing with normal saline. Nutritional

rehabilitation was initiated with a high-calorie, high-protein diet.

Two weeks postoperatively, chest tube drainage became serous and less than 30 mL per day, prompting removal. Post extubation chest radiograph showed re-expansion of the left lung with mild residual pleural effusion (Figure 3). The abdominal wound had ceased discharging pus; however, covered with slough but the patient continued to have intermittent fever. A fluctuant, tender scrotal swelling was noted, from which pus was aspirated, followed by incision and drainage and daily wound care. Cultures from the scrotal aspirate and wound biopsy yielded *Acinetobacter baumannii* and extended-spectrum beta-lactamase (ESBL)-producing *Escherichia coli*, sensitive to amikacin, meropenem, and piperacillin-tazobactam. Blood culture yielded extensively drug-resistant *Acinetobacter baumannii*, sensitive only to amikacin. Targeted therapy with amikacin led to rapid clinical improvement.

By the third and fourth postoperative weeks, fever had resolved, the abdominal wound had granulated well and secondary wound closure was performed. The scrotal wound healed by secondary intention. The patient was discharged home in stable condition at the end of four weeks and was reviewed two weeks later in clinic with a completely healed abdominal wound (Figure 4).

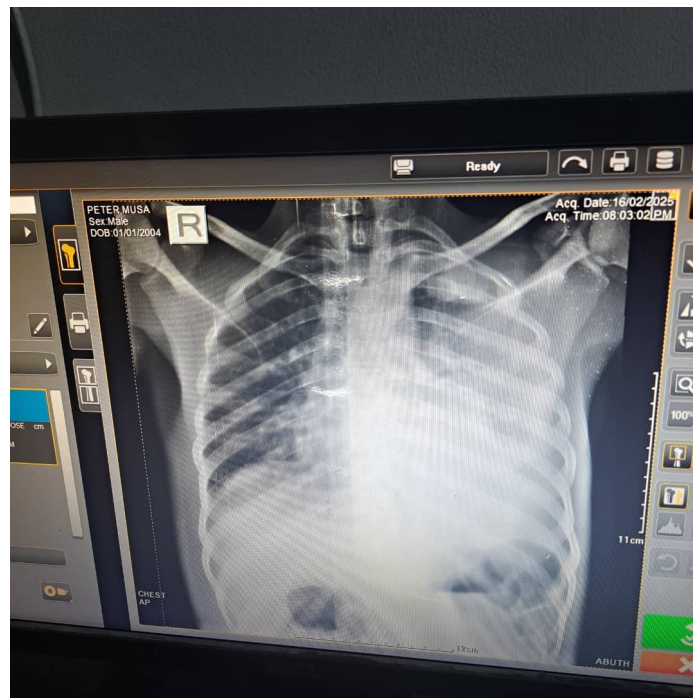


Figure 1: Plain Chest X ray pre chest tube insertion (Patient consent obtained to use photograph)

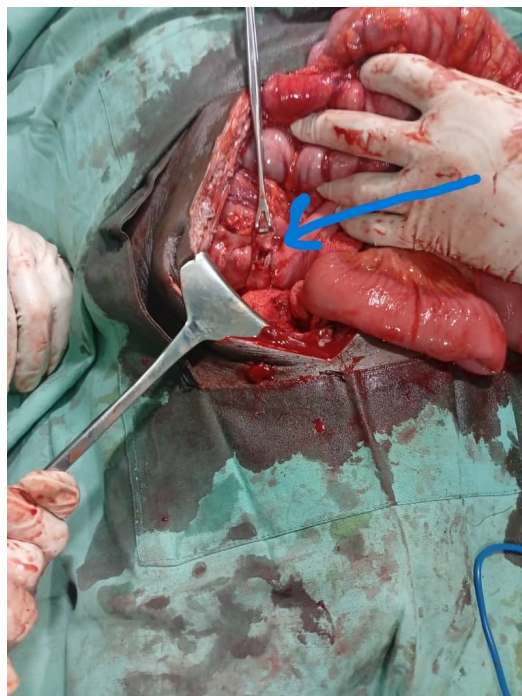


Figure 2: Perforated appendix (blue arrow) (Patient consent obtained to use photograph)

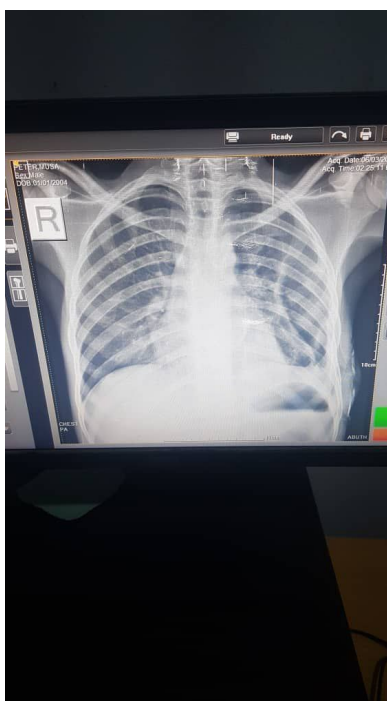


Figure 3: Plain Chest X ray post chest tube extubation (Patient consent obtained)



Figure 4: 2 weeks post op (Patient consent obtained)

Discussion

Management outcomes of acute appendicitis are generally favorable when the disease is uncomplicated and early in the course of illness. Prompt diagnosis and timely intervention,

most commonly by emergency appendectomy, remain central to preventing perforation and its attendant complications. While non-operative management with antibiotics has gained acceptance in carefully selected cases, delayed or inappropriate treatment significantly increases morbidity and mortality.^{2,9}

Metastatic abscess formation is a rare but serious complication of acute appendicitis. Such abscesses occur at anatomical sites distant from the primary pathology and are often associated with prolonged bacteremia and infection with virulent or multidrug-resistant organisms.^{10,11} In the index case, delayed presentation due to self-medication and suppression of symptoms with background malnutrition likely contributed to widespread dissemination of infection.

Management of complicated appendicitis with metastatic infection is often complex and requires a multidisciplinary approach. In this patient, the presence of left-sided empyema thoracis constituted the most immediate life-threatening condition and necessitated urgent closed tube thoracostomy drainage prior to definitive abdominal surgery. Subsequent appendectomy, peritoneal lavage, and drainage of multiple abscesses were essential for effective source control.

The occurrence of abscesses at multiple sites, including the pleural cavity, abdominal wall, and scrotum, underscores the severity of systemic spread and the need for repeated surgical interventions. These findings are consistent with reports that delayed treatment of appendicitis increases the likelihood of extensive infectious complications.^{10,11}

Microbiological cultures from different infection sites demonstrated polymicrobial infection, reflecting the diverse bacterial flora typically associated with acute appendicitis.¹² The evidence of metastasis in this case report was the consistency of multidrug resistant *Acinetobacter Baumannii* and *Escherichia Coli* at various cultured specimen. The multidrug-resistant organisms further complicated management and necessitated targeted antibiotic therapy guided by sensitivity testing. Such an approach is crucial in metastatic infections, where empirical antibiotics may be ineffective.^{10,12,13}

Notably, all isolates in this case demonstrated sensitivity to amikacin despite resistance to multiple commonly used antibiotics. Similar resistance patterns have been reported in Nigeria, with high resistance rates among *Escherichia coli*

and *Klebsiella* species and preserved sensitivity to amikacin¹⁴. Although amikacin is effective against many resistant organisms, its potential nephrotoxicity and ototoxicity necessitate cautious, short-term use under close monitoring¹⁵. The favorable outcome observed in this patient highlights the importance of culture-directed therapy and judicious antibiotic selection.

Conclusion

Neglected acute appendicitis can result in severe and life-threatening metastatic infections, particularly in resource-limited settings where delayed presentation and self-medication are common. This case underscores the importance of early recognition, timely surgical intervention, and effective source control in preventing widespread septic complications. It also highlights the critical role of a multidisciplinary approach and culture-directed antimicrobial therapy in achieving favorable outcomes, even in the presence of multidrug-resistant organisms. Public health strategies aimed at improving health-seeking behavior and access to prompt surgical care are essential to reducing the morbidity associated with complicated appendicitis.

STATEMENTS AND DECLARATIONS

Competing interests: There is no conflict of interest for declaration.

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REFERENCES

1. Alagoa P J, Jebin N J. The changing pattern of acute abdomen in Port Harcourt, Nigeria. *Port Harcourt Med J*. 2010; 4(2): 122-127.
2. Dodiya-Manuel A, Koroya O F. Appendicitis in university of Port Harcourt Teaching Hospital, Nigeria. *East Afr J Med J*. 2012; 89(10): 327-331.
3. Udoe EP, Koroye OF. Appendicectomy Specimens in Bayelsa State, Nigeria. *An 8 Year Clinicopathological Analysis of 539 Cases*. *Iosr-Jdms*. 2018;17(4):1-6.
4. Fente BG, Echem RC. Prospective evaluation of the Bengazi and Al-fallouji modified Alvarado score for presumptive accurate diagnosis of acute appendicitis in University of Port Harcourt teaching Hospital. *Niger J Med*. 2009; 18(4): 398-401.
5. Afuwape OO, Ayandipo OO, Soneye O, Fakoya A. Pattern of presentation and outcome of acute appendicitis: a 10-year experience. *J*

- Clin Sci. 2018; 15(4): 171-175.
6. Kartal K, Yazici P, Unlu TM, Uludag M, Mihmanli. How to avoid negative appendectomy: can ultrasound achieve this? *Ulus Travma Acil Cerrahi Derg.* 2017 23(2):134-138.
 7. Seats LA, Trickey WA, Morris AM, Kin C, STaudenmayer KL. Nonoperative management of uncomplicated appendicitis among privately insured patients. *JAMA Surg.* 2019; 154: 141-149.
 8. Ali N, Aliyu S. Appendicitis and its surgical management experience at the University of Maiduguri Teaching Hospital Nigeria. *Niger J Med.* 2012; 21(2): 223-226.
 9. Mandeville K, Monutreaux M, Pottker T, Bullock B. Effects of timing to diagnosis and appendectomy in pediatric appendicitis. *Pediatr Emerg Care.* 2015; 31 (11):753-758.
 10. Jin C, Hu Jp, Wang L, Hu S, Wang K, Fu L, Zhao X, Qian F, Shentu H. A mini case report: *Klebsiella pneumoniae*-induced metastatic neck abscess following laparoscopic appendectomy. *Heliyon.* 2024; 10(10):e31062.
 11. Giardini M, Breitenstein S, Grierder F and Gantner L. Acute Appendicitis with pyogenic liver abscesses. *Biomed J Sci & Tech Res.* 2022; 41(2): 32544-32549.
 12. Abdulrazzaq A, Afuwape O, Ademola A, Fasina O. Bacteria pattern in acute appendicitis. *Ann Afr Surg.* 2018; 15(1):8-13.
 13. Hernigou J, Dugue L, Maftouh A, Balian, Charlier A. Appendiceal actinomycosis complicated by multiple abscess. *J. Visc. Surg.* 2013; 150: 415-417.
 14. Ayandele AA, Oladipo EK, Oyeibisi O and Kaka MO. Prevalence of multi-antibiotic resistant *Escherichia Coli* and *Klebsiella* species obtained from tertiary medical institution in Oyo State, Nigeria. *Qatar Med J.* 2020; (1): 1-6.
 15. Ipekci T, Seyman D, Berk H, Celik O. Clinical and bacteriological efficacy of amikacin in the treatment of lower urinary tract infection caused by extended-spectrum beta-lactamase-producing *Escherichia coli* and *Klebsiella pneumoniae*. *J Infect Chemother.* 2014; 20(12): 762-767.