S Afr J Surg. 2026;64:53-55. Online first
https://doi.org/10.36303/SAJS.03279

S Afr J Surg
ISSN: 0038-2361 eISSN: 2078-5151

CASE REPORT

Complicated Amyand's hernia

Q Goolam,[1] PM Wondoh,[1] WH Hansen[1]

[1] *Charlotte Maxeke Johannesburg Academic Hospital, University of the Witwatersrand, South Africa*

Corresponding author, email: *qaisergoolam@gmail.com*

Summary
Amyand's hernia is a rare condition characterised by the presence of the appendix within an inguinal hernia sac. We describe a case of a complicated right-sided Amyand's hernia, where imaging demonstrated a ruptured hernia containing a perforated appendix with an appendicolith and a rim-enhancing scrotal abscess, necessitating urgent surgical intervention. This case highlights the importance of computed tomography (CT) imaging in evaluating atypical groin sepsis, the value of multidisciplinary management, and the critical role of timely surgery. It further emphasises the need for individualised operative strategies when addressing complicated Amyand's hernia with perforation and associated soft-tissue infection.
Keywords: Amyand hernia, inguinal hernia, appendicitis, necrotising fasciitis

Case report

An otherwise healthy 25-year-old male with no significant past medical history or chronic conditions presented to Charlotte Maxeke Johannesburg Academic Hospital with a three-month history of progressive right inguinal swelling. On clinical examination, pus was noted to be draining from a sinus in the right inguinal region, accompanied by a swollen and tender right hemiscrotum. Given the purulent sinus in the right inguinal region, tender right hemiscrotum, and systemic inflammatory profile, necrotising fasciitis was suspected, supported by a Laboratory Risk Indicator for Necrotising Fasciitis (LRINEC) score of 12. The high LRINEC score was motivated by the following laboratory investigations – white cell count 26.19 × 10⁹/L (reference 3.29–10.40 × 10⁹/L), C-reactive protein 282 mg/L (reference < 10 mg/L), haemoglobin 10.9 g/dL (reference 13.4–17.5 g/dL), sodium 134 mmol/L (reference 136–145 mmol/L), creatinine 324 µmol/L (reference 64–104 µmol/L), and glucose 8.5 mmol/L).

A transurethral catheter was inserted, and a contrast-enhanced CT scan of the abdomen and pelvis was performed to aid surgical planning in the context of extensive surgical emphysema of the right scrotum and anterior abdominal wall. The imaging revealed a right-sided indirect inguinal hernia originating lateral to the inferior epigastric vessels, containing an inflamed and thickened appendix (diameter 14.3 mm, wall 7.6 mm). An appendicolith (3.4 mm) was present, with perforation and a walled-off rim-enhancing abscess within the right hemiscrotum. Associated findings included surgical emphysema extending from the right inguinal region to the hemiscrotum and spermatic cord (Figures 1 and 2).

A radiological diagnosis of a ruptured Amyand's hernia was made, and the patient was scheduled for an emergent

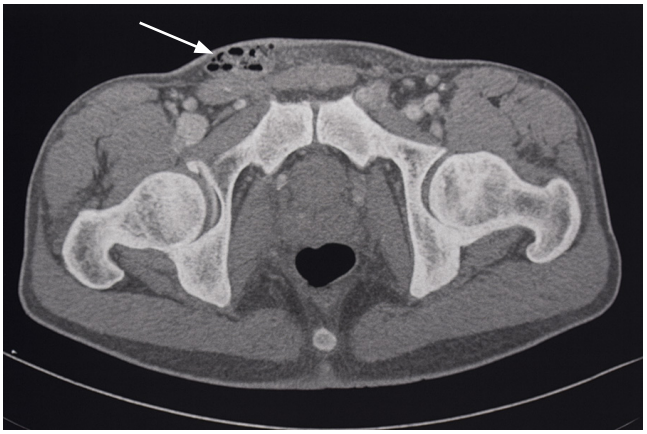

Figure 1: Axial CT image (preoperative) demonstrates multiple small subcutaneous gas locules (arrow) in the lower anterior abdominal wall and inguinal region, consistent with subcutaneous surgical emphysema. There is associated soft tissue stranding, likely reflecting inflammatory changes. No evidence of bowel obstruction or pneumoperitoneum is seen at this level. The bladder is catheterised, and no intraperitoneal free fluid is visible in this slice. The bony pelvis and visualised portions of the pelvic organs appear unremarkable.

Figure 2: Axial contrast-enhanced CT scan showing a right indirect inguinal hernia containing a thickened appendix (arrow) with associated rim-enhancing abscess within the right hemiscrotum (x).

laparotomy and debridement. Given the perforated appendix within the hernia sac and scrotal sepsis, a midline approach was selected to permit safe mobilisation and appendectomy under direct vision, comprehensive peritoneal assessment, and reliable source control. An isolated removal via a groin incision alone risked inadequate control and difficulty reducing the inflamed appendix.

A laparotomy was performed via a midline incision, revealing no evidence of intra-abdominal contamination. The inflamed appendix was mobilised into the abdominal cavity and removed through an appendectomy. A thorough abdominal washout was conducted, and the abdominal cavity was subsequently closed in layers. A separate right groin incision allowed drainage of purulent material and debridement of the right hemiscrotum. Postoperatively, the patient was transferred to the ward under high-care monitoring and was managed with intravenous antibiotics, intravenous fluids, and adequate analgesia. A planned second-look debridement was performed at 72 hours, delayed due to limited theatre availability, despite the patient remaining clinically stable following initial source control. During re-debridement, the tunica vaginalis and cremasteric fibres were debrided to healthy bleeding tissue, haemostasis was secured, and skin edges were refreshed. Slough surrounding the spermatic cord was debrided, the testes remained viable, and the wound was irrigated and dressed.

The patient demonstrated clinical and biochemical improvement, with a decline in inflammatory markers, while blood and urine cultures were negative for bacterial organisms. Wound care proceeded routinely, the transurethral catheter was removed, and he mobilised within a few days. At the outpatient review 2 weeks post-discharge, the wounds showed healthy granulation, with no skin graft required on the right hemiscrotum. He reported good pain control and normal micturition. The testes remained clinically normal.

Discussion

Amyand's hernia is a rare condition characterised by the presence of the appendix within an inguinal hernia sac, accounting for 0.19% to 1.7% of all inguinal hernia cases.[1,2] First described by Claudius Amyand in 1735, it gained historical significance when he performed the first recorded appendectomy on an 11-year-old boy with an inflamed appendix in an inguinal hernia.[3] While often diagnosed in infancy due to a patent processus vaginalis, it remains clinically relevant in adults, where presentations are more likely to mimic incarcerated or strangulated hernias.[1] Early diagnosis and management are critical to prevent serious complications, such as intra-abdominal infections, abscess formation, surgical site infections, hernia recurrence, and prolonged recovery.[4]

Clinically, Amyand's hernia may present with different symptoms, often with groin swelling and tenderness, as well as with signs of systemic inflammation such as fever and leukocytosis.[5] The symptoms are often indistinguishable from other acute inguinoscrotal pathologies such as incarcerated hernias, scrotal abscesses, or necrotising fasciitis. In complicated cases, particularly those involving appendicitis or perforation, the diagnosis can be challenging and delayed without imaging.

CT scan is considered the imaging modality of choice, particularly in patients with sepsis or complex groin masses.[1] It can clearly demonstrate the location, size, and condition of the appendix within the hernia sac, and is capable of identifying complications such as inflammation, perforation, abscess formation, and surgical emphysema. In this case, the CT scan revealed a thickened and inflamed appendix within a right indirect inguinal hernia, complicated by an appendicolith and a rim-enhancing scrotal abscess, prompting timely surgical intervention.

Management of Amyand's hernia is largely dictated by intraoperative findings and the degree of contamination or inflammation present based on the Losanoff and Basson classification.[6] In cases where the appendix appears normal, mesh hernioplasty is often performed without appendectomy. However, when appendicitis or perforation is evident, as in our case, appendectomy with hernia repair is indicated without the use of mesh due to the high risk of postoperative infection. Infected or necrotic tissues are debrided, and hernia repair is undertaken using endogenous tissue.

Minimally invasive techniques such as laparoscopic hernia repair and appendectomy are increasingly employed in selected cases, offering benefits such as reduced postoperative pain and quicker recovery.[7] However, they may not be suitable in the presence of extensive local sepsis or where direct surgical access for debridement is required. In our case, given the scrotal involvement and presence of a walled-off abscess, a midline laparotomy with groin and scrotal exploration was deemed more appropriate.

This case falls within the Losanoff and Basson classification of Type 3 Amyand's hernia. It is characterised by an inflamed appendix with associated abdominal wall or scrotal sepsis. Table I gives the classification and is a helpful framework for guiding operative strategy.

Table I: Losanoff–Basson classification of Amyand's hernia (modified from Losanoff and Basson)[6]

Type	Description	Management
1	Normal appendix	Mesh hernioplasty
2	Inflamed appendix, no sepsis	Appendectomy via hernia, tissue-based hernia repair
3	Inflamed appendix with wall/sepsis	Appendectomy via laparotomy, tissue-based repair
4	Associated abdominal pathology	Appendectomy + management of other intra-abdominal disease

The pathophysiological mechanism behind appendicitis in Amyand's hernia is thought to stem from mechanical compression at the hernia neck, leading to luminal obstruction, ischaemia, and inflammation.[8] If left untreated, this can progress to perforation and abscess formation, as seen in our patient. In such cases, urgent surgical exploration and source control are critical to avoid life-threatening complications, including systemic sepsis and necrotising infection.

A second-look procedure was performed within 72 hours to ensure adequate debridement, a strategy commonly adopted in cases with significant soft tissue involvement. Such staged surgical management is crucial for controlling local infections and enhancing wound healing outcomes.

Long-term considerations include the potential for hernia recurrence, chronic groin pain, testicular atrophy, and infertility. These risks are particularly relevant in young males with extensive scrotal surgery. Some studies advocate for staged mesh repair after infection resolution, especially in

younger patients, to minimise recurrence risk while avoiding mesh-related complications in a contaminated field.[3] In our patient, primary tissue repair was deemed sufficient, with follow-up arranged to assess testicular function and evaluate the need for interval hernia repair if required.

Our case reinforces the need for a high index of suspicion for an Amyand's hernia in patients presenting with atypical groin swelling and systemic sepsis, particularly when accompanied by scrotal symptoms. It also highlights the value of cross-sectional imaging in diagnosing this rare entity preoperatively, a step that can profoundly influence surgical planning and reduce delays in definitive care.

The rarity of Amyand's hernia means that most diagnoses are made intraoperatively. However, with the increasing use of CT scans, more cases may be identified preoperatively. This enables early multidisciplinary planning, particularly in cases that require combined abdominal and scrotal approaches. It also highlights the broader principle that not all groin abscesses or inguinal swellings are straightforward, especially in systemically unwell patients.

In summary, ruptured Amyand's hernia is a rare but clinically significant condition with a wide spectrum of presentations. This case contributes to the limited body of literature on complicated Amyand's hernias, particularly those complicated by perforation and scrotal sepsis. Prompt diagnosis, appropriate surgical strategy, and interdisciplinary perioperative care, including infection control and high-dependency support, are essential for achieving good outcomes. Tailored operative planning based on intraoperative findings, avoidance of mesh in infected fields, and meticulous postoperative care are critical principles. Heightened awareness and early recognition can ultimately reduce morbidity and improve patient outcomes in this rare surgical emergency.

Conflict of interest

The authors declare no conflict of interest.

Funding source

No funding was required.

Ethical approval

The authors declare that this submission is in accordance with the principles laid down by the Responsible Research Publication Position Statements as developed at the 2nd World Conference on Research Integrity in Singapore, 2010. Informed consent was obtained from the patient included in the study.

ORCID

Q Goolam https://orcid.org/0009-0004-4530-2667
PM Wondoh https://orcid.org/0000-0001-6180-860X
WH Hansen https://orcid.org/0000-0001-9972-951X

REFERENCES

1. Ivashchuk G, Cesmebasi A, Sorenson EP, et al. Amyand's hernia: A review. Med Sci Monit. 2014;20:140-6. https://doi.org/10.12659/MSM.889873.
2. Papaconstantinou D, Garoufalia Z, Kykalos S, et al. Implications of the presence of the vermiform appendix inside an inguinal hernia (Amyand's hernia): A systematic review of the literature. Hernia. 2020;24(5):951-9. https://doi.org/10.1007/s10029-020-02215-5.
3. Losanoff JE, Basson MD. Amyand hernia: A classification to improve management. Hernia. 2008;12(3):325-6. https://doi.org/10.1007/s10029-008-0331-y.
4. Coccolini F, Sartelli M, Sawyer R, et al. Source control in emergency general surgery: WSES, GAIS, SIS-E, SIS-A guidelines. World J Emerg Surg. 2023;18:41. https://doi.org/10.1186/s13017-023-00509-4.
5. Singal R, Gupta S. Amyand's hernia: Pathophysiology, role of imaging, and treatment strategies. In: Katara AN, Bhandarkar DS, Shah SR, eds. Hernia surgery: Current perspectives. New Delhi: Jaypee Brothers Medical Publishers; 2013. p.17-20.
6. Losanoff JE, Basson MD. Amyand hernia: What lies beneath - a proposed classification scheme to determine management. Am Surg. 2007;73(12):1288-90. https://doi.org/10.1177/000313480707301221.
7. Sahu D, Swain S, Wani M, Reddy PK. Amyand's hernia: Our experience in the laparoscopic era. J Minim Access Surg. 2015;11(2):151-3. https://doi.org/10.4103/0972-9941.147368.
8. Singal R, Gupta S. Amyand's hernia: Pathophysiology, role of investigations and treatment. Maedica (Bucur). 2011;6(4):321-7.