

An Unexpected Two-Step Approach for Spontaneously Reducing Amyand Hernia

AUTHORS:

Nikhil R. Shah, MD^a; Jeffrey Sohn, MD^b; Alexis Okoh, MD^b; Prakash Paragi, MD^b

CORRESPONDENCE AUTHOR:

Nikhil R. Shah, MD
Department of Surgery
301 University Blvd
Galveston, TX 77555
Email: nikshah@utmb.edu
Phone: (409) 772-0531

AUTHOR AFFILIATIONS:

a. University of Texas Medical Branch, Department of Surgery, Galveston, TX 77555
b. Newark Beth Israel Medical Center, Department of Surgery, Newark, NJ 07112

Background	A male patient who presents with lower abdominal pain and swelling in the right testicle.
Summary	Our 39-year-old patient presented with right testicular and lower abdominal pain associated with swelling of the right testicle and one episode of vomiting. Computed tomography (CT) confirmed a dilated appendix measuring 1.1 cm coursing through a right inguinal hernia with a complex fluid collection in the scrotum. Incision and exploration of the hernia in the operating room revealed that the inflamed appendix had spontaneously reduced into the abdomen. This prompted a Bassini repair of the inguinal canal followed by a laparoscopic appendectomy.
Conclusion	This is an unusual two-step surgical approach to an Amyand hernia not yet described in the literature. It is important for surgical teams to recognize this unexpected possibility in order to prepare a sound intraoperative plan.
Keywords	Amyand hernia, appendicitis, laparoscopic, surgery

DISCLOSURE:

The authors have no conflicts of interest to declare.

To Cite: Shah N, Sohn J, Okoh A, Paragi P. An Unexpected Two-Step Approach for Spontaneously Reducing Amyand Hernia. *ACS Case Reviews in Surgery*. 2019;2(4):43-45.

Case Description

A 39-year-old male with a past medical history of hypertension presented to our institution with complaints of right testicular and lower abdominal pain. This was associated with swelling of his right testicle and one episode of non-bloody, non-bilious vomiting. The patient denied fever or dysuria and the remaining review of systems was unremarkable. Physical examination of the abdomen revealed a reducible, non-tender umbilical hernia. Mild tenderness was appreciated in the right lower quadrant without guarding. Genitourinary examination revealed a hydrocele in the right testicle with an oblique lie, tender to palpation. Inguinal lymphadenopathy was also appreciated. Abnormal laboratory results included a white blood cell count of 15,700/mcL (reference range: 4,500–11,000/mcL).

An ultrasound (US) Doppler of the pelvis showed no abnormalities in the left scrotum but a moderate complex hydrocele in the right scrotum with internal debris and septations. An abdominal and pelvic computed tomography (CT) scan showed the umbilical hernia to contain a noninflamed loop of bowel and confirmed a dilated appendix measuring 1.1 cm coursing through a right inguinal hernia (Figure 1 and Figure 2). A complex fluid collection was also noted in the scrotum, concerning for perforated appendicitis. The diagnosis of Amyand hernia containing appendicitis was made. The patient was scheduled for emergency surgery due to the visualized complex fluid, concerning for perforation.

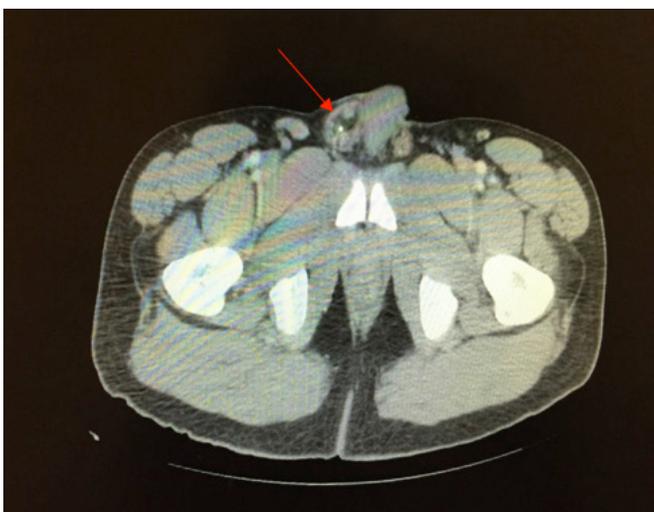


Figure 1. CT scan of the pelvis demonstrating a dilated appendix measuring 1.1 cm coursing through a right inguinal hernia with concurrent appendicolith.

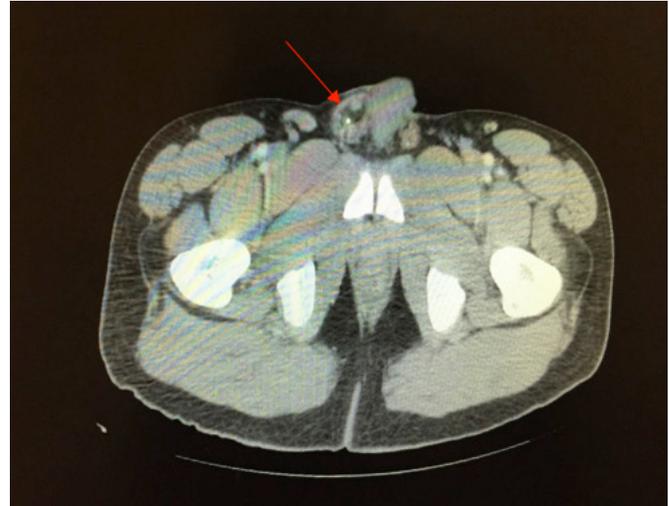


Figure 2. A lower section of the pelvic CT scan confirming presence of the entire appendix within the hernia sac.

A single incision was made overlying a line from the anterior superior iliac spine to the pubic tubercle, and was carried down through the fascia of Camper and the fascia of Scarpa. After dissection of the external abdominal oblique aponeurosis and cord structures, the hernia sac was identified and incised. However, it was determined to be empty, aside from a marginal amount of serous fluid. It was concluded that the appendix, previously confirmed on CT scan to be within the inguinal hernia, had spontaneously reduced. Tissue repair of the inguinal canal was completed without synthetic mesh using the Bassini approach, as perforation could not yet be ruled out.

Next, it was decided that laparoscopy would be required to enter the abdomen for localization and removal of the reduced appendix. Given the presence of a concurrent umbilical hernia, the decision was made to dissect the sac and place the Hasson trocar within the hernia to enter the peritoneal cavity. The appendix was determined to be inflamed, but not perforated. Following appendectomy and removal of trocars, the umbilical hernia sac was freed from its surrounding tissue and a primary repair was performed. Final pathology report revealed an appendix 1.2 cm in diameter with indurated meso-appendiceal fat, confirming acute appendicitis.

In the postoperative period, there were no complications to register. The patient was maintained on intravenous antibiotics for 24 hours and was discharged on the first postoperative day. Outpatient follow-up one week later revealed intact incision sites with no evidence of hematoma, seroma, or hernia recurrence.

Discussion

Localizing the appendix within an inguinal hernia was first detailed by Claudius Amyand in 1735.¹ Clinical presentation generally varies based upon concurrent presence of acute appendicitis in the hernia. Even so, symptomology caused by an incarcerated hernia alone versus acute appendicitis may be difficult to distinguish. It is important to be cognizant of presenting variations of this condition, as the degree of hernia complication will direct surgical approach.

Losanoff and Basson established a four type classification for Amyand hernias along with recommended intervention, based on the status of the appendix. Type I is a normal appendix localized within the hernia sac, warranting primary reduction and mesh repair without appendectomy. Type II is acute appendicitis within the hernia sac prompting appendectomy through inguinal incision without mesh repair. Type III describes acute appendicitis with accompanying peritonitis; appendectomy is to be performed through laparotomy, followed by hernia repair without mesh. Type IV is acute appendicitis with or without abdominal disease, and therapy is left to the discretion of the clinician; if present, underlying abdominal pathology should be treated along with appendectomy.⁶⁻⁷

Existing literature presents incidental diagnoses of Amyand hernia intraoperatively, with normal appendices discovered through either open or laparoscopic approach. Because primary intent in these cases is hernia repair, the surgical plan remains unchanged and a tension-free mesh hernia repair is completed without appendectomy.^{2,5,8} A smaller subset of the literature details pre-operative diagnosis of incarcerated Amyand hernias by means of ultrasonography or CT scan prompting a single incision transherniotomy appendectomy.³⁻⁴

Our case classifies as a Type II Amyand hernia and the presence of complex fluid on imaging was concerning for a contaminated site. Ordinarily, these findings warranted a transherniotomy appendectomy as supported by existing literature,^{1,2,7} however, the spontaneously reducing appendix prompted swift surgical reevaluation. The unexpected finding thus required an unplanned two-step approach, consisting of primary hernia repair without mesh and subsequent laparoscopic appendectomy.

Conclusion

This paper details the case of a patient presenting with a right inguinal hernia containing acute appendicitis and possible perforation, as confirmed by CT scan. The Amyand hernia, a rare diagnosis, requires a well-planned surgical approach.^{1,7} Due to the unexpected reduction of the appendix into the abdomen, our planned transherniotomy appendectomy could not be performed. Instead, primary tissue repair and subsequent laparoscopic appendectomy was performed.

Lessons Learned

This is an unusual two-step surgical approach to an Amyand hernia not yet described in the literature. It is important for surgical teams to recognize this unexpected possibility in order to prepare a sound intraoperative plan.

References

1. Amyand C. Of an inguinal rupture, with a pin in the appendix caeci incrustrated with stone, and some observations on wounds in the guts. *Phil Trans R Soc Lond.* 1736;39:329–42.
2. Morales-Cardenas A, Ploneda-Valencia CF, Sainz-Escárrega V, et al. Amyand hernia: Case report and review of the literature. *Ann Med Surg (Lond).* 2015 April 14;113–15.
3. Smith-Singares E, Boachie JA, Iglesias IM. A rare case of appendicitis incarcerated in an inguinal hernia. *J Surg Case Rep.* 2016 June 6;2016(6).
4. Velimezis G, Vassos N, Kapogiannatos G, Koronakis D, Perrakis E, Perrakis A. Incarcerated recurrent inguinal hernia containing an acute appendicitis (Amyand hernia): an extremely rare surgical situation. *Arch Med Sci.* 2017 April 1; 702–04.
5. Maeda K, Kunieda K, Kawai M, et al. Giant left-sided inguinoscrotal hernia containing the cecum and appendix (giant left-sided Amyand's hernia). *Clin Case Rep.* 2014 December 2. 254–57.
6. Michalinos A, Moris D, Vernadakis S, et al. Amyand's hernia: a review. *Am J Surg.* 2014 June; 207(6):989–95.
7. Losanoff J, Basson, M. Amyand hernia: a classification to improve management. *Hernia* 2008;12:325–6.
8. Sahu D, Swain S, Wani M, Reddy PK. Amyand's hernia: Our experience in the laparoscopic era. *J Minim Access Surg.* 2015 April–June;11(2):151–3.