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Department of Surgery, THQ Hospital Dunyapur, Dunyapur, Pakistan

Correspondence to: Shamin Khan, dr.shamin@yahoo.com

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# Amyand's Hernia: A Case Report and Review of the Literature

Shamin Khan and Rehman Habib ur

## ABSTRACT

### INTRODUCTION

Amyand's hernia (AH) is defined as an inguinal hernia containing the appendix in the hernial sac. It is a rare form of hernia comprising up to 1% of all inguinal hernia cases. This rare entity is named after the French-born English surgeon, Dr. Claudius Amyand. Most patients with AH often remain asymptomatic and are diagnosed intraoperatively.

### CLINICAL HISTORY

A 44-year-old man with a normal body mass index who had a history of right-sided reducible inguinoscrotal swelling for 5 years was admitted for elective right inguinal hernia repair. Ultrasound of the abdomen and groin reported an indirect inguinal hernia. Laboratory parameters were within normal limits. Based on this diagnosis of right-sided reducible indirect inguinal hernia, the patient underwent open hernia repair surgery. Perioperatively, the appendix was identified within, and adherent to, the hernial sac. The appendix was mildly congested, with no gross evidence of inflammation. The patient was subsequently treated with an appendectomy and tension-free hernia repair with mesh, with a successful outcome.

### CONCLUSION

AH makes up only a small proportion of most inguinal hernia cases, and its diagnosis is usually based on an incidental finding intraoperatively. This condition may remain asymptomatic and behave like a normal inguinal hernia. More studies are needed to understand the physiology of this type of hernia. In addition, more cases should be reported to help establish guidelines for diagnosing and treating this hernia. Laparoscopy in cases of AH is frequently employed for both diagnostic and therapeutic purposes, although increased clinical vigilance and awareness are essential to ensure optimal patient outcomes in cases of inguinoscrotal pathology.

**Keywords:** Amyand's hernia, Inguinoscrotal appendicitis, Losanoff–Basson classification, Mesh hernioplasty controversies, Laparoscopic management

### Introduction and Importance

A hernia forms when an organ or its fascia protrudes through the wall of the cavity.<sup>1</sup> An inguinal hernia is a protrusion of abdominal-cavity contents through the inguinal canal. The contents of the inguinal hernial sac may include intraperitoneal fat, small, or large bowel, bladder, ovaries, and appendix.<sup>2</sup> Amyand's hernia (AH) is defined as an inguinal hernia containing the appendix within the hernial sac.<sup>3</sup> The incidence of this rare disease is up to 1% of all cases of inguinal hernias.<sup>4</sup> Claudius Amyand was the first surgeon to describe and treat it in 1735.<sup>5</sup> It is more common in males (90% of patients), and on the right side because of the

normal location of the appendix and the increased inguinal hernia on the right side.<sup>6</sup> It is clinically difficult to differentiate AH from an inguinal hernia due to their similar presentations. An AH is a diagnostic challenge due to its rarity, and diagnosis is often incidental, on imaging or intraoperatively.<sup>7</sup>

### Case Presentation

#### Patient Information

A 44-year-old male presented to the surgical department outpatient clinic with a complaint of a painful swelling in the right inguinal region for the past 5 years. Initially, it was small and gradually increased in size over time, and developed pain. There was no history of abdominal pain or vomiting, and the patient did not seek any medical advice for it previously, as this swelling had been present for a long time, causing no symptoms.

#### Physical Examination

On examination, there was an incomplete, reducible indirect right inguinal hernia with a positive cough impulse.

#### Diagnostic Assessment

The patient was clinically diagnosed with an indirect inguinal hernia. Ultrasonography also showed a right inguinal hernia. Hematologic workup was within normal limits.

#### Intervention

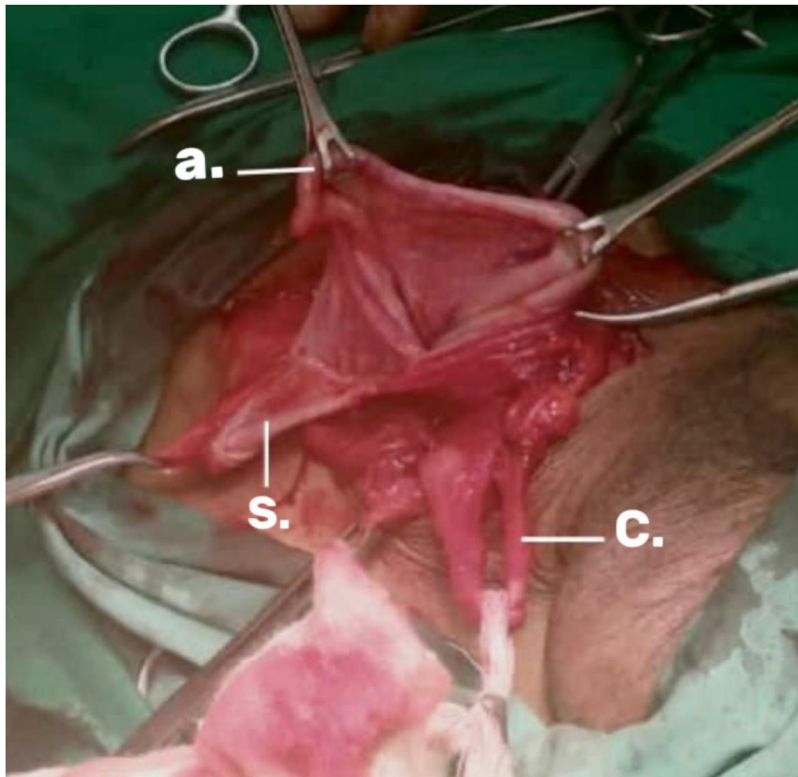
A preoperative diagnosis of right inguinal hernia was made, and a plan for hernia repair with mesh was made. Intraoperatively, the hernial sac was found to contain an appendix. The appendix was slightly congested, not inflamed, but there were dense adhesions within the sac, and so adhesiolysis and appendectomy, along with herniotomy and Lichtenstein mesh hernioplasty, were done. The postoperative period was uneventful.

#### Follow-Up and Outcome

Postoperatively, the patient was eating and drinking and was discharged the next day with follow-up after 1 week of surgery to remove stitches, and then after 6 weeks of surgery. On the follow-up, no hernia recurrence or mesh-related complications were noted (Figure 1).

#### Clinical Discussion

AH is an inguinal hernia containing the appendix inside it, regardless of the inflammation. It is classified according to Losanoff and Basson depending on the presence and spread of inflammation (Table 1).<sup>8</sup> In this case, appendectomy with simultaneous hernioplasty



**Fig 1 | AH with appendix in the hernial sac. a = Vermiform appendix; s = Hernial sac. c = Spermatic cord**

generalized inflammation, and bacterial overgrowth.<sup>13</sup> Right-sided AHs occur more often than left-sided ones due to the anatomical location of the appendix on the right. Left-sided AHs are very rare,<sup>14</sup> although they have been reported on the left side; this is rare and may be associated with situs inversus, intestinal malrotation, or a mobile cecum.<sup>15</sup> A normal-looking appendix in the hernial sac does not always require appendectomy. Appendectomy adds the risk of infection to an otherwise clean procedure. Whether to remove or leave behind a normal appendix is a clinical dilemma because no evidence-based information exists. There is an ongoing debate over prophylactic appendectomy when the appendix appears normal.<sup>11</sup> Historically, surgical management of AH was primarily through an open approach. A laparoscopic approach is becoming favored due to patient benefits such as faster recovery, shorter hospital stays, and decreased postoperative pain.<sup>16</sup> Investigations such as ultrasonography and computed tomography scan may help in preoperative diagnosis, but the final diagnosis of Amyand hernia is usually made intraoperatively.<sup>9</sup> Definitive preoperative diagnosis poses a challenge due to indistinct clinical signs and symptoms. Due to the rarity of AH and the wide variety of its presentation, each case study and review article sheds light on new and useful information regarding its treatment and diagnosis.<sup>1</sup> This case has been reported in line with the SCARE 2025 criteria as published by Kerwan et al.<sup>17</sup>

**Conclusion**

Due to its rare nature, AH diagnosis remains a perioperative finding. The choice of surgery (appendectomy and herniotomy or hernioplasty) is surgeon-dependent, based on the presentation and difficulties encountered, as well as the consideration of therapeutic options. Although the complications of this type of hernia are rare, they can be dangerous and life-threatening. Therefore, fast and accurate diagnosis and treatment are essential. More studies are needed to understand the physiology of this rare type of hernia and to determine the best diagnosis and treatment methods. The literature review recommends reducing the hernia content and performing a tension-free hernia repair. However, in the cases where an inflamed, suppurative, or perforated appendicitis is encountered, no prosthetic material should be used because of the increased risk of surgical site infection. Nevertheless, more research is needed to provide surgeons with evidence-based standardized approaches for dealing with this unique situation to ensure optimal patient outcomes.

**References**

- Ivanschuk G, Cesmebasi A, Sorenson EP, Blaak C, Loukas M, Tubbs SR. Amyand's hernia: a review. *Med Sci Monit.* 2014;20:140–6. <https://doi.org/10.12659/MSM.889873>
- McIntosh A, Hutchinson A, Roberts A, Withers H. Evidence-based management of groin hernia in primary care—a systematic review. *Fam Pract.* 2000;17(5):442–7. <https://doi.org/10.1093/fampra/17.5.442>
- Patoulias D, Kalogirou M, Patoulias I. Hernie d'Amyand: une revue actualisée de la littérature. *Acta Med (Hradec Kralove).* 2017;60(3):131–4. <https://doi.org/10.14712/18059694.2018.7>

**Table 1 | Losanoff and basson classification of AH**

Classification	Description	Surgical Management
Type 1	Normal appendix in an inguinal hernia	Hernia reduction, mesh repair
Type 2	Acute appendicitis in an inguinal hernia, without abdominal sepsis	Appendectomy, primary repair of hernia without mesh
Type 3	Acute appendicitis in an inguinal hernia, with abdominal wall or peritoneal sepsis	Laparotomy, appendectomy, primary repair without mesh
Type 4	Acute appendicitis in an inguinal hernia, with abdominal pathology	Manage as Type 1–3, investigate pathology as needed

was completed prophylactically for a potential future complication that may lead to appendicitis.<sup>9</sup> The decision to keep or remove the appendix relies upon the individual's age, endurance, and the hazards of developing acute appendicitis. The young people have a higher chance of developing acute appendicitis in comparison with elderly patients.<sup>10</sup> Removing a healthy appendix is subject to a medical debate, which has not reached a consensus yet.<sup>11</sup> Many theories try to explain the pathology of AH; one of them suggests that it may be a congenital situation due to a fibrous connection between the right testis and appendix, with the presence of patent processus vaginalis, and this connection leading to the appendix toward the hernial sac.<sup>12</sup> The underlying mechanism that causes appendicitis in an AH is not the same as that of true appendicitis. Obstruction of the appendix in an AH is caused by the extraluminal pressure of the hernia neck on the appendix rather than intraluminal obstruction.<sup>4,8</sup> Incarceration of the appendix secondary to the hernia neck then leads to compromised blood flow,

- 4 Samsami M, Sayadi S, Qaderi S, Bagherpour JZ. A case report of appendicitis within an Amyand's hernia: a surprising finding in diagnostic laparoscopy. *Int J Surg Case Rep.* 2020;77:507–9. <https://doi.org/10.1016/j.ijscr.2020.11.060>
- 5 Hailu AM, Emiru ZA, Kedimu MW. Amyand's hernia containing appendiceal neuroma presenting as incarcerated inguinal hernia: a rare case report from Ethiopia. *Int J Surg Case Rep.* 2024;115:109222. <https://doi.org/10.1016/j.ijscr.2024.109222>
- 6 Manatakis DK, Tasis N, Antonopoulou MI, Anagnostopoulos P, Acheimastos V, Papageorgiou D, et al. Revisiting Amyand's hernia: a 20-year systematic review. *World J Surg.* 2021;45(6):1763–70. <https://doi.org/10.1007/s00268-021-05983-y>
- 7 To J, Hanna P, Mohammed R, Trinh S, Vazquez F, Zuberi J, et al. Amyand's hernia presenting as an unusual inguinal mass: a case report. *Ann Transl Med.* 2017;5(17):346. <https://doi.org/10.21037/atm.2017.06.59>
- 8 Bratu D, Mihetiu A, Sandu A, Boicean A, Roman M, Ichim C, et al. Controversies regarding mesh utilisation and the attitude towards the appendix in Amyand's hernia—a systematic review. *Diagnostics (Basel).* 2023;13(23):3534. <https://doi.org/10.3390/diagnostics13233534>
- 9 Kimberly AS, Eric MM, Ross DE, Snover AJ. Two rare cases of appendicitis: Amyand's hernia and de garengot's hernia. *Case Rep Emerg Med.* 2019;2019:6759206. <https://doi.org/10.1155/2019/6759206>
- 10 Amyand C. Of an inguinal rupture, with a pin in the appendix caeci incrustrated with stone, and some observations on wound in the guts. *Phil Trans R Soc London.* 1736;39:329–42. <https://doi.org/10.1098/rstl.1735.0071>
- 11 Sadhu J, Samuel VM, Kodiatte T, Gaikwad P. Amyand's hernia: case report - current dilemma in diagnosis and management. *J Clin Diagn Res.* 2015;9(2):PD03–4. <https://doi.org/10.7860/JCDR/2015/11295.5548>
- 12 Mathur P, Mittal P, Kumar A. Amyand's hernia: appendix in hernia or hernial appendicitis? *J Indian Assoc Pediatr Surg.* 2023;28(3):206–11. [https://doi.org/10.4103/jiaps.jiaps\\_64\\_22](https://doi.org/10.4103/jiaps.jiaps_64_22)
- 13 Singal R, Mittal A, Gupta A, Gupta S, Sahu P, Sekhon MS. An incarcerated appendix: report of three cases and a review of the literature. *Hernia.* 2012;16:91–7. <https://doi.org/10.1007/s10029-010-0715-7>
- 14 Kakodkar P, Neo W, Khan M. An incidental discovery of Amyand's hernia: a case study and literature review on its intraoperative management. *Cureus.* 2020;12:e11858. <https://doi.org/10.7759/cureus.11858>
- 15 Khan RA, Wahab S, Ghani I. Left-sided strangulated Amyand's hernia presenting as testicular torsion in an infant. *Hernia.* 2011;15:83–4. <https://doi.org/10.1007/s10029-009-0616-9>
- 16 Shaban Y, Elkbuli A, McKenny M, Boneva D. Amyand's hernia: a case report and review of the literature. *Int J Surg Case Rep.* 2018;47:92–6. <https://doi.org/10.1016/j.ijscr.2018.04.034>
- 17 Kerwan A, Al-Jabir A, Mathew G, Sohrabi C, Rashid R, Franchi T, Nicola M, et al. Revised Surgical Case REport (SCARE) guideline: an update for the age of Artificial Intelligence. *Premier J Sci.* 2025;10:100079.