

# Amyand's hernia. A case report

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Case report

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## Background

Inguinal hernias represent 75% of abdominal wall hernias, of which the risk of presentation is 27-43% in men and 3-6% in women. The presence of the vermiform appendix inside the sac associated or not with appendicitis is known as Amyand's hernia (HA). Amyand's hernia is a form of inguinal hernia that is considered very rare, named after Claudius Amyand (1660-1740), who is credited with performing the first recorded successful appendectomy in an 11-year-old boy with a chronically inflamed appendix within an inguinal hernia. Most patients remain asymptomatic and are diagnosed intraoperatively. Currently, there is a worldwide controversy regarding the management of hernias but there are more and more reports and case series, where the use of meshes for the successful management of type 2 hernias is described. Surgical therapy should be individualized based on the patient's short, medium, and long-term associated morbidity and mortality.

**Keywords:** Amyand's hernia, inguinal hernia.

Inguinal hernias represent 75% of abdominal wall hernias, of which the risk of presentation is 27-43% in men and 3-6% in women. Amyand's hernia (HA) is known as the presence of a suspected vermiform inside the sac associated or not with appendicitis. Amyand's hernia is a form of inguinal hernia that is considered very rare, named after Claudius Amyand. (1660 -1740), who is credited with performing the first recorded successful appendectomy on an 11-year-old boy, with chronic inflamed sleep within an inguinal hernia. Most patients will remain asymptomatic and will be diagnosed intraoperatively.

Currently, there is a worldwide controversy regarding the management of hernias but there are more and more reports and case series, where the use of meshes for the successful management of type 2 hernias is described. Surgical therapy should be individualized based on the patient's short, medium, and long-term associated morbidity and mortality.

## Case report

An 83-year-old male patient. Pathological personal history with the presence of systemic arterial hypertension under control, long-standing COPD under control. She was admitted for scheduled intervention for a long-standing right indirect inguinal hernia. During the dissection of the hernial sac, a

tubular structure corresponding to the 5x2 cm vermiform appendix was found without inflammatory signs. Under strict protection of the surgical field, it was decided to carry out an appendectomy, subsequent closure of the sac and reduction of it to a cavity. After cleaning the surgical field and changing gloves, we proceed to repair the plasty with Lichtenstein technical prosthetic material. The postoperative period was uneventful; he was discharged within 48 hours of observation. Follow-up was given by outpatient clinic with no surgical wound complications or hernia recurrence data.

Amyand's hernia occurs in up to 0.4-1% of all cases of inguinal hernias. In this type, the content of the hernial sac is the appendix.<sup>1</sup> The name of Amyand's hernia is due to the English surgeon Claudius Amyand (1681-140), who in 1735 performed the first appendectomy on an 11-year-old boy during the intervention of an incarcerated inguinal hernia that contained the perforated cecal appendix inside.<sup>2-3</sup> Most patients with HA often remain asymptomatic and are diagnosed intraoperatively.<sup>4</sup> Usually presents as an indirect hernia<sup>5</sup>

It has a bimodal distribution frequently in the elderly and young with a predilection for incarceration<sup>6</sup> In pediatrics it is associated with appendicitis in the newborn in relation to a permeable vaginal process<sup>7</sup>

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Classification	Description	Management
Type 1	Normal appendix in an inguinal hernia	Hernia reduction, mesh repair, appendectomy in young patients
Type 2	Acute appendicitis in an inguinal hernia with no abdominal sepsis	Appendectomy through hernia, primary endogenous hernia repair, no mesh
Type 3	Acute appendicitis in an inguinal hernia with abdominal and abdominal wall sepsis	Laparotomy, appendectomy, primary endogenous hernia repair, no mesh
Type 4	Acute appendicitis in an inguinal hernia with concomitant abdominal pathology	Same as Type 3 + management of concomitant disease

**Table 1.** Losanoff and Basson classification of Amyand Hernia.

After progressively narrowing during middle age, the internal inguinal ring re-enlarges by age<sup>8</sup>

They usually present on the right side according to anatomy, however if they present on the left side it is secondary to intestinal malrotation, situs inversus totalis and a highly mobile cecum<sup>9</sup>.

The clinical manifestations are mostly asymptomatic, however if there is acute appendicitis the risk of complications are serious including perforation, ischemia and necrosis. Therefore, the inflammatory state of the appendix and age determine the surgical options<sup>10</sup>

The diagnosis, despite being intraoperative, computed tomography is considered the preoperative method of choice since it is the preferred imaging modality. In type 1 hernias, it allows direct visualization of the appendix within the inguinal canal<sup>10</sup>. In cases of appendicitis (types 2 and 3), the usual findings are a thickened appendix, fat strips, fluid collections, or abscess formation. The location of the cecum very close to the internal inguinal ring is particularly suggestive of Amyand's hernia<sup>11</sup>

A classification system designed to diagnose and treat Amyand's hernia has been created and is called the Losanoff and Basson criteria. It consists of four different types: type 1, a normal appendage in the hernial sac; type 2, a hernia with acute appendicitis; type 3, a hernia with acute appendicitis and abdominal sepsis; and type 4, acute appendicitis with related or unrelated abdominal pathology<sup>11</sup>

Type 4 hernias represented only 2% of all cases and included cases of intestinal, omental, and testicular necrosis, as well as cecal adenocarcinoma<sup>12</sup> and NETs are frequent as primary appendiceal neoplasms in people over 50 years of age up to 43-57%.<sup>12</sup>

The established surgical management of Amyand's hernia is clear for types 1, 3 and 4 (Table 1),



**Figure 1.** Appendix inside hernia sac.

with the use of mesh being the management indicated for the surgical correction of type 1 inguinal hernia, and its use being contraindicated in type 3 and 4 hernias<sup>13</sup>. Currently, there is a worldwide controversy regarding the management of type 2 hernias, but there are more and more reports and case series, where the use of meshes for the management of type 2 hernias is described successfully, without increasing the risk of infection of the surgical site or the appearance of fistulas due to its use<sup>13</sup>

In this regard, it is clear and relevant to mention the importance of the surgeon's experience, the correct choice of the type of mesh (ideally low-density and microporous), and the inflammatory involvement of soft tissues and structures within the inguinal canal.<sup>14</sup>

The reported mortality in case of complications is 15 to 30% in most cases as a consequence of abdominal sepsis<sup>15,16</sup>.

## Discussion

The management of Amyand's hernia is under discussion since there is literature that defends

prophylactic appendectomy and those who reject this therapeutic approach. However, those who defend it emphasize the careful resection of the piece avoiding contamination of the field, thus reducing the morbidity and mortality of future appendicitis without increasing the anesthetic risk due to the subsequent surgical process<sup>17</sup> On the other hand, the detractors of prophylactic appendectomy argue that the violation of an aseptic surgical technique of a clean procedure in principle, increases morbidity due to infectious complications, which would also increase the probability of recurrence of the hernia<sup>18</sup>

## Conclusion

In summary, the hernia of Amyand is a rare entity and is generally detected as an unexpected intraoperative finding in most cases. The decision of surgical therapy to offer should be dictated taking into account individual factors that may increase morbidity and mortality in a short, medium or long term.

## Conflicts of interests

There was no conflict of interest during the study, and it was not funded by any organization.

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