

## Amyand's Hernia - A Rare Case of Appendicitis

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### Abstract

*Background:* Amyand's hernia is a rare presentation of inguinal hernia which may be defined as a condition in which the appendix is incarcerated within the hernia sac.

*Case Description:* A 40 year old male Presented to emergency department with complain of a painful swelling in right inguinal area since 3 days. Inflamed appendix was found as the content when the hernia sac was opened during lichenstein repair. Appendectomy done and redundant sac excised followed by lichenstein mesh repair.

*Literature Review:* Amyand's Hernia was classified by Losanoff and Basson into four subtypes. In subtype 1 of Losanoff and Basson classification in which a normal appendix is found in the inguinal hernia sac incidentally it is propose Amyand's hernia may be managed with reduction or appendectomy, depending on comorbidities, and mesh hernioplasty.<sup>4,5</sup> In Subtypes 2-4 of Losanoff and Basson classification in which a pathological appendix is found in the inguinal hernia sac require appendectomy and hernia repair without the utilization of mesh.

*Clinical Relevance:* The incidence of appendicitis inside an inguinal hernia is indeed rarer; with an assessed rate at 0.07-0.13%.<sup>3</sup> The rate of perforated appendix incarcerated inside an inguinal hernia is uncommon as well, at 0.1% of all cases of appendicitis. Amyand's hernia may be a diagnostic challenge due

to its low incidence, ill defined clinical presentation, and vague appearance on imaging such as CT. Surgery is hence frequently demonstrative as well as therapeutic.

### Introduction

An Amyand's hernia is a rare entity where a normal or pathological appendix is found in an inguinal hernia sac. It is most commonly found intra operatively amid an inguinal hernia repair. The incidence of Amyand hernia is uncommon, the appendix may sometimes be incarcerated inside Amyand's hernia and lead to complications such as strangulation and perforation. Incarceration of the appendix most commonly happens inside inguinal and femoral hernias, but is seen rarely in incisional and umbilical hernias.

### Case Report

A 40 year old male Presented to emergency department with complain of a painful swelling in right inguinal area since 3 days- the pain was sudden in onset and involved only the right inguinal area, moderate in intensity with no associated signs of intestinal obstruction. On examination the swelling was tender and warm. The swelling was irreducible though the patient gave history of a reducible swelling in the same region. Abdomen was found to be soft with no features of peritonitis.

Intra operative findings- Inflamed appendix was found as the content when the hernia sac was opened during lichenstein repair. Appendectomy

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done and redundant sac excised followed by lichenstein mesh repair.

## Discussion

### History

In 1735 A French Surgeon named Claudius Amyand incidentally found an appendix perforated by a pin within an inguinal hernia sac during appendectomy of an 11 year old boy.<sup>1</sup> Since then, the condition in which vermiform appendix is found within a hernia sac was named after Amyand's hernia.

### Epidemiology

Amyand's hernia has been reported in patients with age from 3 weeks to 92 years. The rate of Amyand's hernia has changed within the literature, extending from 0.19% to 1.7% of reported hernia cases. Amyand's hernia is 3 times more commonly reported in children than in grown-ups, due to the patency of the processus vaginalis within the pediatric population.<sup>2</sup> The rate of appendicitis inside an inguinal hernia is indeed rarer; with an evaluated rate at 0.07–0.13%.<sup>3</sup> The rate of perforated appendix incarcerated inside an inguinal hernia is uncommon as well, at 0.1% of all cases of appendicitis. Rarely complications such as periappendicular abscess was reported by Kueper et al. While Marron et al and Osorio et al reported Amyand hernia complicated by necrotizing fasciitis of the inguinal region. Wilson et al reported thrombotic complications such seen in amyand hernia in which inta abdominal abscess due to perforated appendix lead to formation of an in situ arterial thrombosis. Amyand Hernia may also present with appendiceal adenocarcinoid tumor.

### Classification

**Table 1 :** Losanodd-Basson Classification of Amyand's Hernia.

Type I	normal appendix found within an inguinal hernia sac
Type II	An inflamed appendix found within an inguinal hernia sac with no signs of peritonitis and abdominal sepsis
Type III	Inflamed appendix found within an inguinal hernia with signs Peritonitis and abdominal sepsis
Type IV	Some other abdominal pathology exists simultaneously

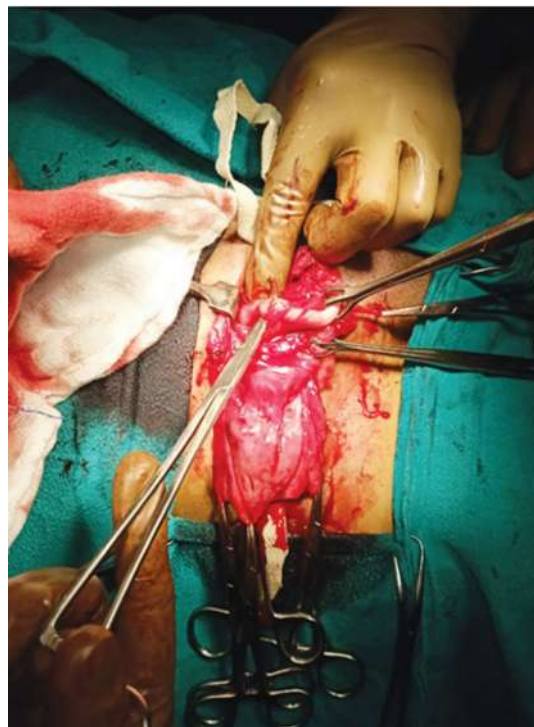
### Pathophysiology

It is usually caused by extra luminal obstruction due to pressure on the hernia neck rather than

intra luminal obstruction of appendix. Contraction of the abdominal muscles and other suddenly increases the intra abdominal pressure may cause compression of the appendix resulting in further inflammation. The blood supply may subsequently be cut off or significantly reduced resulting in inflammation and bacterial over growth.



**Fig. 1:** Caption is not given



**Fig. 2:** Caption is not given



Fig. 3: Caption is not given

Symptoms-	Swelling
	Sudden Severe pain that grows worse
	Fever
	Nausea Vomiting
	Tenderness and/or redness in and around the hernia buldge
Differential Diagnosis	Strangulated hernia
	Local Abscess
	Incacerated hernia

Management Preoperative Diagnosis based on CT and ultrasonography is heavily dependent on the technical skill of the radiologist. The imaging modalities are helpful in diagnosing the complications associated with amyand's hernia.

Losanoff and Basson suggested that In subtype 1, Amyand's hernia may be managed with reduction or appendectomy, followed by mesh hernioplasty.<sup>4,5</sup>

While Subtypes 2-4, all with abnormalities of the appendix, require appendectomy and hernia repair without the use of mesh. Removal of the appendix may be performed by entrance through the hernia in cases of uncomplicated appendicitis, while laparoscopic appendectomy should be used in those complicated by abscess, perforation, or malignancy.<sup>4</sup> Tycast et al proposed the use of laproscopic surgery as not only therapeutic but as a diagnostic tool as well.

Prophylactic appendectomy and the use of mesh<sup>4</sup> in management of amyand hernia is still debatable. In cases of Amyand's hernia with appendicitis or perforation, appendectomy should be performed while it is not necessary in subtype 1 of losanoff and Basson classification in which the appendix is not inflamed. In the latter case the appendix may be reduced, and the hernia is repaired with mesh. There are some that advocate appendectomy in all cases of Amyand's hernia.<sup>4,6</sup>

This advocacy is based on the fact that the appendix is prone to relocate within the hernia, and any manipulation of the appendix during reduction may lead to appendicitis and further complications.

In all cases of un-inflamed Amyand's hernia, hernia repair with mesh is advocated. In regard to the debate of hernia repair with mesh, there is increased risk of inflammation or abscess, wound infection, sepsis, fistula formation, and recurrent hernias. While newer biologic meshes in cases of inflamed and perforated appendicitis have been used by a few authors without any development of infection<sup>4</sup>.

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