



Review

External hernia of the supramesical fossa: Rare or simply misidentified?

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HIGHLIGHTS

- The study aims to provide the surgical community with clinical data concerning hernias of the supramesical fossa.
- Demonstrate that the frequency seems to be underestimated.
- Deepening this topic may result useful in adequately managing this hernia type.

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ABSTRACT

Background: External hernias of the supramesical fossa are considered rare, perhaps wrongly. Highlighting clinical and anatomical features could be useful for correct, preoperative diagnosis, thus avoiding the risk of complications such as incarceration. The study aims to demonstrate that the incidence of external protrusions of the supramesical fossa is higher than supposed. Probably, being mistaken for direct hernias, these hernia types are misidentified and not included in current classifications. This issue deserves attention due to the elevated risk of incarceration related to its distinctive structure.

Material and methods: 249 consecutive open anterior inguinal hernia procedures were analyzed. Hernias were categorized according to the Nyhus classification. A subgroup of direct hernias involved true hernias of the supramesical fossa. Multiple ipsilateral, as well as combined hernias having a multi-component structure, were also considered.

Results: 13 true hernias of the supramesical fossa and 19 multiple ipsilateral or combined hernias composed of direct and/or indirect hernia, together with one hernia of the supramesical fossa were identified. 4 true hernias of the supramesical fossa presented signs of incarceration. In three other combined protrusions, the herniated component of the supramesical fossa also showed incarceration of the visceral content.

Conclusions: Hernias of the supramesical fossa would appear to be more frequent than imagined. These protrusions show a diverticular shape and the base is often tightened by the stiffer medial umbilical fold. This explains the apparently higher tendency to incarceration that distinguishes this hernia type. Pre-operative signs of inguinal pain and irreducibility are pathognomonic for correct diagnosis. In these cases, surgical treatment in the short term is recommended.

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1. Introduction

Hernia of the supramesical fossa is considered rare. In literature, two types of supramesical hernias are described: internal and external [1]. A bulge may protrude through the supramesical fossa,

which may develop in different directions. The protrusions that emerge through the cranial aspect of the fossa usually generate external hernias, while those expanding into the inferior area generally penetrate the prevesical space of Retzius originating an internal hernia [2]. In brief, these two kinds of hernias simply differ in the path of the protrusion: an internal hernia does not cross the abdominal wall and remains restricted in the preperitoneal space, presenting with the prevesical, paravesical, lateral or intravesical

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variant [2,3]. An external hernia passes through the abdominal wall expanding into the inguinal canal medially of the medial inguinal fossa. Internal supravesical hernias are infrequently diagnosed, being reported almost exclusively when an intestinal obstruction occurs [4–6]. Little scientific literature refers to external supravesical inguinal hernias. To date, very few studies exist regarding the gross anatomical differences between supravesical and direct protrusions detected during inguinal hernia repair. The reason would seem to be that, being essentially neglected, supravesical hernias are probably mistaken for direct hernias and, consequently, not correctly acknowledged. Intraoperative evidence in the frame of open anterior hernia repair shows that hernias of the supravesical fossa can protrude alone, in combination with a direct hernia, in the form of a dual component combined hernia, or in the tricomponent version, when the protrusion involves all three inguinal fossae [7]. In some patients, this hernia type can also protrude as a separate component of multiple ipsilateral hernias. In the light of this, one can assume that these protrusions are more frequent than imagined. The present report is focused on describing the anatomical aspects of external hernias of the supravesical fossa. Highlighting and further studying its features could probably help surgeons in adequately identifying this protrusion type, thus adopting an appropriate strategy for accurate preoperative diagnosis and surgical treatment.

2. Material and methods

Incidence and features of external hernias of the supravesical fossa observed in patients who underwent anterior open inguinal hernia repair represent the subject of the report. These protrusions, listed in a single operator case series, include 249 consecutive open inguinal hernia procedures. All operated subjects were male. Hernias were categorized using the Nyhus classification, except for hernias arising from the supravesical fossa as these hernia types are not considered in any classification in literature. Protrusions were registered as indirect (Nyhus 1 and Nyhus 2), direct (Nyhus 3a), combined hernias (Nyhus 3b) and multiple ipsilateral hernias. Direct hernias were further divided into 2 subgroups: the former included hernias protruding from just the medial inguinal fossa, while the latter subgroup involved true hernias of the supravesical fossa. Combined hernias were divided into three subcategories: bi-component combined protrusions having indirect + direct components, bi-component hernias composed of a direct hernia + supravesical fossa protrusion, as well as combined protrusions with a tri-component structure: direct, indirect + supravesical fossa hernias merging into one single protrusion. Multiple ipsilateral hernias were also included in the assessment. Due to scanty reports on the subject, and with the intent to exhaustively detail its features, particular care was

Table 1

Total patients enrolled, demographics and hernia types. Main hernia types and related amount are evidenced in blue, subgroups in white.

Total patients enrolled		Nr. 249	100%
Age (median)	52,71 years (range 20 – 81)		
BMI (median)	28,1 (range 21 – 36)		
Hernia types			
Indirect		111	44,5
Direct (total)		60	24,0
Direct hernia– subgroup 1: Hernia of the fossa inguinalis media		47	18,8
Direct hernia – subgroup 2: Hernia of the fossa supravesicalis		13 (4 incarcerated)	5,2
Combined (total)		47	18,8
Combined – subgroup 1: bi-component protrusion composed by direct + indirect hernia		8	3,2
Combined – subgroup 2: bi-component protrusion composed by direct + fossa vesicalis hernia		16 (3 incarcerated)	6,4
Combined – subgroup 3: tri-component protrusion (direct + indirect + fossa vesicalis components)		23	9,2
Multiple ipsilateral (separated direct and/or indirect and/or supravesical hernias)		32	11,6
Bi- or Tri-component ipsilateral hernias (separate protrusions composed by direct and/or indirect + supravesical hernia)		3	1,1

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