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UNUSUAL CONTENTS IN INCARCERATED INGUINAL HERNIA

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Abstract:

Aim: *Inguinal hernia when incarcerated may present an emergency due to the impending danger of strangulation and subsequent necrosis of its contents. Intra-abdominal organs, e.g. small intestine, omentum, colon are commonly found in incarcerated inguinal hernia. However, some contents are reported rarely including vermiform appendix, acute appendicitis, Meckel's diverticulum, epiploic appendagitis, ovary, fallopian tube, urinary bladder diverticula. Medical professionals must be aware of unusual contents to plan effective management of the problem.*

Technique: *In the present study, we compiled case studies on unusual contents of incarcerated inguinal hernias reported in research journals from 2000 through 2020. The purpose is (i) to find out the incidence of unusual contents in inguinal hernias (ii) to find out frequencies of particular content in inguinal hernias (iii) to study the clinical presentation of specific unusual content of hernia (iv) to examine the age and gender distribution in cases of unusual contents of inguinal hernias.*

Results: *We compiled sixteen (16) case reports and three (3) review articles from the literature. Among the unusual contents appendix, acute appendicitis, ovaries, fallopian tubes, urinary bladder diverticulum were frequently reported. Unusual content showed age-specific and gender-specific distribution. In general adult male were more affected than female. Urinary bladder diverticulum was commonly found in old males with a history of prostate hyperplasia. All of the cases for ovary, fallopian tubes were observed in female infants. Amyands hernia was more common in children than in adults. Cases of the stomach, ascitic fluid, Mekel diverticulum (Littre's hernia), epiploic appendagitis, splenogonadal band were also reported. Clinical features were also content specific with a mild variation. Bilateral inguinal hernia with ovaries and fallopian tubes was also reported.*

Conclusion: *Unusual contents of inguinal hernia are rare surgeons must be cautious of them. Clinical picture, physical examination and radiological assessments all should be done exhaustively to confirm the source of the hernial content.*

Keywords: *incarcerated inguinal hernia, unusual contents, case studies*

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INTRODUCTION:

Inguinal hernias are commonly encountered during surgical practice [1]. An inguinal hernia is presented as a swelling in the groin that may be reducible manually. It may remain so without producing any symptoms for a more extended period. Some patients have reported having symptomless reducible inguinal hernia for more than 2o years. However, reducible hernias may become irreducible, and an organ may be trapped inside them. When an inguinal hernia becomes irreducible, and an organ is trapped within its sac, such inguinal hernia is termed as an incarcerated hernia. Mostly intra-abdominal organs which are also intra-peritoneal are contained within the hernia. Sometimes traction of the peritoneal sac of an inguinal hernia may pull extra-peritoneal organs like urinary bladder within it [2]. Unusual contents of inguinal hernia present many problems for successful management of the hernia and overall, well being of the patient [3]. The first surgeon has to decide whether to repair the organ contained in the hernia or to sacrifice it. Second, if the unusual content found intra-operatively, then the surgeon has to confirm its origin before deciding its fate. Third, sometimes a malignant growth may look like an organ, and surgical resection may worsen the condition. Therefore medical professional should perform an exhaustive investigation to confirm the content of the inguinal hernia before going for the surgical treatment of the problem. Fortunately, they can be diagnosed easily by clinical examination and appropriate investigations like ultrasound, X rays, and CT scan[4]. MRI is seldom needed to confirm the diagnosis.

METHODOLOGY:

Sixteen (16) case reports were compiled. Only those case reports were included for a compilation that

- showed the words *"unusual content" or "rare content" of inguinal hernia* in the title
- reported in the literature from 2000 to 2020.

Thre review articles were included to compare the frequencies of unusual contents of inguinal hernia.

RESULTS:

Table 1: Summary of case reports on unusual contents in inguinal hernia reported in the literature.

S.No	Reference	Age	Gender	Side of inguinal hernia	Clinical features	Diagnosis made by	Medical History
Gastroptosis and stomach							
1	Martin and Mare, 2020	74 y	Male	Left	Six months history of epigastric pain, dysphagia, weight loss of approx 15 kg	CT Abdomen Preoperative	Active smoking Moderate alcohol consumption
2	Patel et al., 2014	85	Male	Left	Three days o profuse vomiting and pain	CT Abdomen Preoperative	Long-standing inguinal hernia
Acute Appendicitis (Amyand's hernia)							
3	Ali et al., 2012	64 y	Male	Left	Two days of the history of fever pain vomiting	Ultrasound	Reducible inguinal hernia for five years
4	Ali et al., 2012	19 y	Male	Right	No symptoms	Ultrasound	Six months history of swelling
5	Ali et al., 2012	75 y	Male	Right	No symptoms	Ultrasound	Two months of history of swelling
6	Ali et al., 2012	26 y	Male	Right	No symptoms	Ultrasound	Two years of history of swelling

7	D'Alia et al., 2003	84 y	Male	Right	Five days history of pain, no fever or vomiting	Intraoperatively	Reducible inguinal hernia for 20 years
Epiploic appendagitis							
8	Ballas et al., 2009	Not reported	Male	Left	Four months history of a left groin lump	-	-
Urinary bladder diverticulum							
9	Omari and Alghazo, 2013	59 y	Male	Right	Nine months history of pain, urinary frequency and urgency, nocturia, painful urination.	Ultrasound and Cystogram	Hypertensive and BPH for five years
10	Nabavizadeh et al., 2017	79 y	Male	Right	Nine months history of pain, urinary frequency and urgency, nocturia, dysuria, terminal dribbling	Intravenous Urography	BPH
Meckel's diverticulum (Littre's hernia)							
11	Malling et al., 2017	52 y	Female	Right	Three days old painful mass, no fever	Ultrasound	
12	Reddy et al., 2018	73 y	Male	Right	One day's old painful mass, fever	Ultrasound	Reducible painless swelling for two years
Fallopian tube and ovary							
13	Ballas et al., 2009	39 y	Female	-	Not reported	-	-
Uterus, Fallopian tube, ovary							
14	Ming et al., 2011	1 m	Female	Right	swelling, appear larger on crying	Ultrasound	-
15	Ming et al., 2011	1.5 m	Female	Right		Ultrasound	-
Splenogonadal Fusion band							
16	Xiang et al., 2019	5 m	Male	Left	-	-	-

Table 2: Frequencies of unusual contents of incarcerated inguinal hernia

	Gurer et al., 2006 (n=1950)	Ballas et al., 2009 (n=856) 1998-2007	Ivashchuk et al., 2014
Vermiform appendix	0.51%	0.38%	
Appendicitis	0.10%	0.12%	0.7-0.13%
Ovary	2.9%		
Urinary Bladder	0.36%		
Epiploic appendicitis		0.12%	

DISCUSSION:

Incarcerated inguinal hernia with unusual content is observed rarely. The research paper has reported the prevalence of unusual content as small as 1.5%. Unusual contents may put surgeons into a dilemma about the fate of the content. Therefore the preoperative diagnosis of the content is of crucial importance for the surgeon. Nevertheless, a physical examination is said to be highly specific and sensitive for the determination of inguinal hernia; radiological investigations are considered the gold standard for the accurate early diagnosis of the hernia and its contents. Clinical presentation of the hernia depends upon many factors including its contents, presence of co-morbid or associated risk factors, presence and advancement of pathological process within the content of the hernia etc. However cases of the same unusual content, for example, acute appendicitis presented with the different clinical picture. Some patients presented with fever and profuse vomiting, while others remain symptomless. Variation in the clinical picture might be due to the advancement of the pathological process or inflammation.

On the other hand, the clinical picture of some unusual content, for example, urinary bladder, showed a consistent pattern. All the patients with urinary bladder diverticulum in the inguinal hernia presented with dysuria, nocturia, urgency and pain in the groin. From these observations, it can be inferred that the clinical picture is not consistent for appropriate content. However, it gives us a clue to proceed further in a specific direction for a correct and accurate diagnosis.

CONCLUSION:

It is concluded that finding unusual content in incarcerated inguinal hernia is rare but of critical importance for the surgeons. An accurate diagnosis will help the better decision, effective management and better prognosis.

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