

Parietal Hernias in Adults at Bouaké University Hospital: Epidemiological and Diagnostic Aspects

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Abstract

Introduction: A hernia of the abdominal wall is defined as the externalization of a viscera of the abdominal cavity in relation to a deficiency of the components of the wall. Topographies are diverse and diagnosis is based on clinical practice. The objective of this study was to describe the epidemiological and diagnostic aspects of abdominal wall hernias at the University Hospital of Bouaké, Côte d'Ivoire. **Patients and Methods:** This was a descriptive retrospective study that ran from January 2010 to December 2022. It concerned all patients admitted for abdominal wall hernias. **Results:** We collected 497 records of patients admitted for abdominal wall hernia. Abdominal wall hernias accounted for 7.6% of patients admitted to the ward (n = 6512) and were the fourth most common patient. These were males (79%; n = 392) and females (21%; n = 105). The mean age was 43 years [range: 17 and 70 years]. The occupation was dominated by forced labourers with 73% (n = 372) more specifically farmers (42%; n = 209). The average consultation time was 2 days (extreme 1 and 8 days). The main clinical signs were abdominal pain for strangulated hernias with or without occlusive signs (n = 397; 79.8%) and reducible bothersome swelling with intermittent pain (n = 100; 20.2%) for non-strangulated hernias. Hernias of the groin (inguinal and femoral hernia) were the most frequent with 85% (n = 422) followed by hernias of the white line (epigastric, umbilical and hypogastric) with 14% (n = 71) and lumbar hernias (Spiegel, Jean-Louis Petit and Grynfeldt) with 1% (n = 4), we did not note any cases of pelvic hernia (obturator and ischiatic). **Conclusion:** Parietal hernias are a common surgical condition at the Ivory Coast University Hospital, particularly in Bouaké. Groin hernia is the most common topographic variety. Strangulation is the main complication.

Keywords

Hernia, Wall, Topography, Surgery

1. Introduction

A hernia of the abdominal wall is defined as the externalization of a viscera of the abdominal cavity in relation to a deficiency of the components of the wall. This definition excludes ventrations, eviscerations and internal hernias that occur under specific conditions [1]. According to the literature, the hernia can be located in different regions of the abdominal wall (groin, white line, lumbar and pelvic). But most often it sits in the groin. It is a common pathology in sub-Saharan Africa, where the population is predominantly rural [1] [2] [3]. Diagnosis is clinical. In our country (Ivory Coast) we have noted few studies specifying the epidemiology of wall hernias in adults. We therefore initiated this work to learn about the epidemiology and diagnostic aspect of abdominal wall hernias at the Bouaké University Hospital.

2. Patients and Methods

This was a 13-year descriptive retrospective study that took place from January 2010 to December 31, 2022 in the digestive surgery department of the Bouaké University Hospital. All records of patients admitted for herniated wall were collected. Records of patients with postoperative eventration, evisceration, and internal hernias were not included. The variables were: age, gender, socio-professional status, background and topography. Hospitalization and emergency department admission registers from CROs were used to collect data. The data were recorded and analysed using Excel 2016 and Epi-info7.

Anonymity and confidentiality were respected for all patients.

3. Results

3.1. Epidemiological Aspects

We collected 497 (7.6%) records of patients admitted for wall hernia. They accounted for 7.6% of patients admitted to the ward (n = 6512).

There were 392 men (79%) and 105 women (21%), a sex ratio of 3.7. The mean age was 43 years [range: 17 and 70 years]. The series was dominated by subjects between 30 - 45 years of age (n = 192; 26%). The age distribution of patients is shown in **Table 1**.

The occupation was dominated by forced labourers with 73% (n = 372) more specifically farmers (42%; n = 209). The distribution of patients by occupation is shown in **Table 2**. Patients came in 77% (n = 383) of cases from rural areas and in 23% (n = 114) from urban areas (Bouaké and surrounding towns).

3.2. Diagnostic Aspects

Patients were presented with non-painful inguinal or inguino-scrotal, umbilical, femoral, lumbar and epigastric swelling in 20.2% of cases (n = 100) and for painful swelling in 79.87% of cases (n = 397). The average consultation time was 2 days (extreme 1 and 8 days).

Table 1. Distribution of patients by age.

AGE GROUP (years)	Actual	Percentage
15 - 24	89	18
25 - 34	104	21
35 - 44	132	26.5
45 - 54	65	13
55 - 64	60	12
65 and over	47	9.5
Total (%)	497	100

Table 2. Distribution of patients by profession.

Profession	Actual	Percentage
Farmers	209	42
Workers	99	20
Housewives	64	13
Traders	50	10
Students	45	9
Employees	20	4
Other	10	2
Total	497	100

Patients (n = 397; 79.87%) admitted for painful swelling had a strangulated hernia on clinical examination with or without occlusive signs. Diagnosis was clinical in all cases. However, ASP was performed in patients with occlusive signs (n = 300; 60.3%).

Hernias were located in descending order in the groin in 422 patients (85%), in the white line in 71 patients (14%) and in the lumbar region in 4 patients (1%).

Hernias in the groin were distributed in descending order into inguino-scrotal (n = 257; 61%) (**Figure 1**), pure inguinal hernia (n = 149; %), femoral or crural hernia (n = 10; 2.3%) (**Figure 2**) and hernia of the labia majora (n = 6; 1.4%).

Inguinal hernia

Groin hernias were located in 57% (n = 241) on the right and left in 43% (n = 183). Inguinal hernia was bilateral in 40 patients (26.8%). The distribution of patients by topography is shown in **Table 3**.

Hernias in men (n = 392; 79%) were, in descending order: inguinal and inguinoscrotal hernias (n = 357; 91%), umbilical hernias (n = 19; 5%), epigastric hernia (n = 14; 3.5%), Jean-Louis Petit hernia (n = 2; 0.5%).

Hernias in women (n = 105; 21%) were, in descending order: inguinal hernia (n = 49; 46.5%), umbilical hernia (n = 20; 19%), epigastric hernia (n = 18; 17%), femoral or crural hernia (n = 10; 9.5%) (**Figure 1**), hernia of the labia majora (n =



Figure 1. Image of a giant inguinoscrotal hernia (Photolibary, Department of General and Digestive Surgery, Bouaké University Hospital).



Figure 2. Image of a crural hernia in a woman (Photolibary, Department of General and Digestive Surgery, Bouaké University Hospital).

Table 3. Distribution of parietal hernias according to topography.

Topography	Actual	Percentage
Groin hernia	422	85
<i>Hernie groin-scrotal</i>	257	61
<i>Inguinal hernia</i>	149	35.3
<i>Crural or femoral hernia</i>	10	2.3
<i>Hernia of the labia majora</i>	6	1.4
White line hernia	71	14
<i>Umbilical hernia</i>	39	54.9
<i>Epigastric hernia</i>	32	45.1
Lumbar hernia	4	1
<i>Hernie de Spiegel</i>	2	50
<i>Hernia of Jean Louis-Petit</i>	2	50
Total	497	100

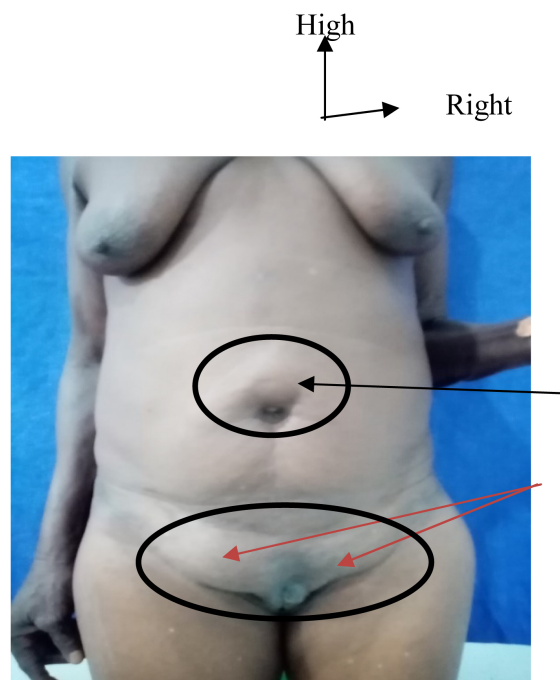


Figure 3. Image of an epigastric hernia (black arrow) + bilateral inguinal hernia (red arrow) in a woman (Photolibrary, Department of General and Digestive Surgery, Bouaké University Hospital).

6; 6%), and Spiegel's hernia (n = 2; 2%).

Regardless of sex, inguinal hernia and umbilical hernia, with 81.6% (n = 406) and 7.8% (n = 39) respectively, were the main sites of hernias. The majority of hernias (90%; n = 447) are acquired. Some patients had multiple hernias (n = 7; 1.4%). These were bilateral inguinal hernia associated with epigastric hernia in 4

cases (**Figure 3**) and bilateral inguinal hernia associated with umbilical hernia in 3 cases.

4. Discussion

Parietal hernias, with 7.6%, were the fourth pathology of our department after acute appendicitis, acute generalized peritonitis and acute intestinal obstructions. In Benin, in the Olory-Togbé study [1], they represented 15.83% and were the second pathology of the service.

In the study carried out in Mali by Idrissa Tounkara [4], they represented 30.22% and were also the second pathology of the service. This demonstrates the frequency of parietal hernias in Africa below the Sahara.

Our series was predominantly male (79%) and mostly young adults [1] [3] [5].

Subjects performing strength labor accounted for 73% of the cases in our series. In Boukinda's study [1] in Congo, it was 90% of patients. Force-workers are mostly represented in the various studies, which is an argument to support the theory that the hernia is linked to repeated physical exertion (working the land, carrying heavy loads) which, each time causing intra-abdominal hypertension, drives the mobile viscera towards the dehiscence zones where they gradually externalize [1]. This observation is made in our study because the majority of our patients came from rural areas where the main activity is working the land.

However, in the Harouna series [6] in Niger, parietal hernia affected all occupational categories in the same proportions. They are diverse and depending on the site, these wall hernias are divided into groin hernia (inguinal and femoral hernia), white line hernia (epigastric, umbilical and hypogastric), lumbar hernia (Spiegel, Jean-Louis Petit and Grynfeldt) and pelvic hernia (obturator and ischial hernia). Hernia pathology is congenital in infants, children, adolescents and possibly in some adults who have not undergone surgery in childhood. However, it is acquired in most adults and elderly subjects [1] [2] [6], as is the case in our study. In the literature, wall hernias are dominated by groin hernias, including inguinal hernia [7] [8].

In our series, groin hernias were also the most common variety of parietal hernias regardless of gender. Almost all cases involve inguinal hernia. In the study carried out by Olory-Togbé [2] in Benin, inguinal clubroot was also the most common variety with 79% of cases.

For Boukinda [1] in Congo, inguinal hernia accounted for 93.4% of groin hernias.

The inguinal hernia in our series was usually inguino-scrotal. This is contrary to the Olory-Togbé [2] study in which pure inguinal hernia accounted for 63% of cases. It was more common on the right than on the left, usually unique with a male predominance as described in the literature [7] [8] [9]. In our series, only 26.8% of patients had bilateral hernia. The femoral hernia in our series accounted for only 2% of groin hernias. It was all women. They were all strangulated

on admission. Olory-Togbé [2] identified only one case in a woman in two years in his series. This finding is consistent with data from the literature, which states that it is rare and is most often observed in women [9] [10].

White line hernias accounted for 14% of cases in our series. Umbilical hernia was the most common and predominantly female in our series. In the study of Engbang [11] in Cameroon, it was also observed more frequently in women.

Lumbar hernias accounted for only 1%. They were Spiegel's hernia and Jean-Louis Petit's. We did not have any cases of pelvic hernia (obturator and ischiac). In the Olory-Togbé series, no cases of Spiegel's hernia, lumbar hernia, obturator or ischial hernia were diagnosed in the study. These varieties of hernias are rare in the literature [12] [13].

The majority of our patients (79.8%) consulted urgently, at the strangulation stage. OLORY-Togbé [2] accounted for 23% of strangulation cases. This could be explained by the difficulty for these rural and poor populations to access adapted health centres. Diagnosis was clinical in all cases [14] [15].

5. Conclusion

Parietal hernias are a common surgical condition at the Ivory Coast University Hospital, particularly in Bouaké. Inguinal clubroot is the most common topographic variety. Acquired forms are dominant. Strangulation is the main complication.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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