

Abdominal Wall Hernias in Adults: Comparative Study of Anatomico-Clinical, Therapeutic and Progressive Aspects between Two Hospitals in the South of Togo

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Abstract

Objective: We aim to analyze the surgical nursery of abdominal wall hernias in adults between two poorly fitted medical environments, the Regional Hospital Center of Tsévié (RHC-T) and the Prefectural Hospital Center of Kpalimé (PHC-K) in Togo. **Methodology:** It was a retrospective, descriptive and comparative study carried out over five years (2018-2022) focusing on abdominal wall hernias in adults. Information was gathered from the patients' clinical notes and registers on the frequency of hernias, the anatomico-clinical forms of hernias, the type of anesthesia, the hernia repair technique and the postoperative evolution. **Results:** Of the 1022 and 1026 operations performed, 312 and 412 were hernial repairs, representing 30.5% and 41.2% of operations at RHC-T and PHC-K respectively ($p = 0.001$). The inguinal hernia was the most often found in 83.7% ($n = 261$) at RHC-T versus 76.6% ($n = 324$) at PHC-K. Herniorrhaphy was the most frequently used repair method, in 93.6% ($n = 292$) of patients at RHC-T and in 91.3% ($n = 376$) at PHC-K ($p = 0.11$). Postoperative complications were noted in 5.1% of cases ($n = 16$) at RHC-T versus 3.5% of cases ($n = 15$) at PHC-K ($p = 0.307$). These complications included scrotal hematomas, surgical areas infections, and orchitis. We recorded 1.3% ($n = 4$) and 0.8% ($n = 3$) deaths at RHC-T and PHC-K respectively ($p = 0.496$). **Conclusion:** There is homogeneity in the treatment

of hernia in these two hospitals in Togo.

Keywords

Hernia, Comparative Study, South Togo

1. Introduction

Abdominal wall hernias include anatomic-clinical forms, inguinal hernias, white line hernias, umbilical hernias, Spiegel hernias, lumbar hernias, obturator and ischial hernias [1]. These are common surgical pathologies. In adults, hernias may be caused by weakness of the abdominal wall and/or increased intra-abdominal pressure. It may also be the persistence of a congenital hernia discovered in adulthood [2]-[3]. It is estimated that more than 20 million hernias are repaired each year all over the world [4]. In Ghana, the repair of abdominal hernias represents 7.5% of the whole operations [5]. From a clinical diagnosis, hernia is a benign ailment besides cases of strangulation that can turn into something worse like necrosis of the herniated viscera [1]. The treatment of hernia is surgical, and it aims to repair and/or reinforce the abdominal wall after the reintegration of the viscera [6]. Surgical techniques vary in accordance with the type of hernia, the surgeon's experience and the technical platform. Surgical techniques in hernia repair involve open-route or laparoscopic procedures. This comparative study, the first in a national series, was therefore initiated between two hospital centers in the south of Togo in order to identify the anatomic-clinical forms, analyze the surgical technique(s) and their results in abdominal wall hernial treatment in adults.

2. Materials and Methods

It was a retrospective, descriptive and comparative study carried out at the Regional Hospital Center of Tsévié (RHC-T) and the Prefectural Hospital Center of Kpalimé (PHC-K), which are the reference centers for these two towns, south Togo, from January 2018 to December 2022 (five years). There is no ethics committee in these hospitals to give ethical approval, but authorization from each hospital manager was obtained for the study. The study material consisted of the medical records of patients aged 18 and over, operated on for an abdominal wall hernia and followed up for a minimum period of three months. The parameters studied were: the frequency of hernias, the anatomic-clinical forms of hernias, the type of anesthesia, the hernia repair technique and the postoperative evolution. Data entry and analysis were done using Microsoft Word, Excel 2013 and Epi Info 7.2.5 software. Comparison of qualitative variables was done by the exact chi² test. The statistical test was considered significant for a value of $p < 0.05$. The results are presented in the form of proportion for qualitative variables of average and standard deviation for quantitative variables.

3. Results

We recorded 308 patients at RHC-T and 387 patients at PHC-K with abdominal wall hernia during the study period with an annual average of 61.6 ± 11.93 (extremes: 44 to 76) patients at RHC-T and 77.4 ± 13.79 (extremes: 60 to 95) patients at PHC-K ($p = 0.045$). There were 1022 surgical interventions at RHC-T versus 1026 at PHC-K, including 312 and 423 hernial repairs, respectively. Hernial repair therefore represented 30.5% of surgical operations at RHC-T and 41.2% at PHC-K with a statistically significant difference; $p = 0.001$. Clinically, inguinal hernia was the most common in both centers in 83.7% ($n = 261$) of cases at RHC-T versus 76.6% ($n = 324$) of cases at PHC-K. **Table 1** puts hernias into categories according to their type. Inguinal hernia was most often found on the right in both centers (63.2% at RHC-T and 58.6% at PHC-K) with a prevalence of the inguinoscrotal form at RHC-T in 52.9% of cases ($n = 138$) and the inguinal form at PHC-K in 53.7% of cases ($n = 174$); The distribution of inguinal hernias according to the anatomico-clinical form and laterality is summarized in **Table 2**. Hernias were strangulated in 23.1% of cases ($n = 72$) versus 16.3% of cases ($n = 69$) at RHC-T and PHC-K respectively. They were engorged in 9.6% of cases ($n = 30$) at RHC-T and 8.5% of cases ($n = 36$) at PHC-K. In terms of treatment, caudal anesthesia was performed in 288 patients (93.5%) at RHC-T and in 377 patients (97.4%) at PHC-K. The other patients had benefited from general anesthesia. Herniorrhaphy was performed for 292 patients (94.8%) at RHC-T and for 376 patients (97.1%) at

Table 1. Displaying the distribution of hernias according to type.

	CHR Tsévié		CHP Kpalimé	
	n	%	n	%
Inguinal hernia	261	83.7	324	76.6
Umbilical hernia	36	11.5	55	13
Epigastric hernia	15	4.8	44	10.4
Total	312	100	423	100

Table 2. Displaying the distribution of inguinal hernias in accordance with the anatomico-clinical form and laterality.

	CHR Tsévié				CHP Kpalimé			
	n	Laterality			n	Laterality		
		L	R	B		L	R	B
Inguino-scrotal hernia	138	37	90	0	145	41	104	0
Inguinal hernia	123	31	75	28	174	56	82	36
Femoral hernia	0	0	0	0	5	1	4	0
Total	261	68	165	28	324	98	190	36

L: left; R: right; B: bilateral.

PHC-K, with a $p = 0.11$; not significant. The other cases were taken care of, using hernia repair plates. For inguinal hernias, the Bassini technique was the most frequently used in RHC-T in 83.5% of cases, while in PHC-K it was the Shouldice technique that predominated in 69.1% of cases. **Figure 1** shows the percentages of the different techniques for repairing inguinal hernias. Sutures with “X” stitches were the most commonly used technique for repairing umbilical and epigastric hernias in both centers (**Table 3** and **Table 4**). The surgical course were simple in 93.8% ($n = 289$) of patients at RHC-T and in 95.9% ($n = 371$) at PHC-K. Postoperative complications were noted in 4.9% of patients ($n = 15$) at RHC-T and 3.3% of patients ($n = 13$) at PHC-K with $p = 0.31$, non-significant. It was a question of scrotal hematomas, surgical areas infections and orchitis. We recorded 1.3% of cases ($n = 4$) and 0.8% of cases ($n = 3$) of deaths respectively at the RHC-T and

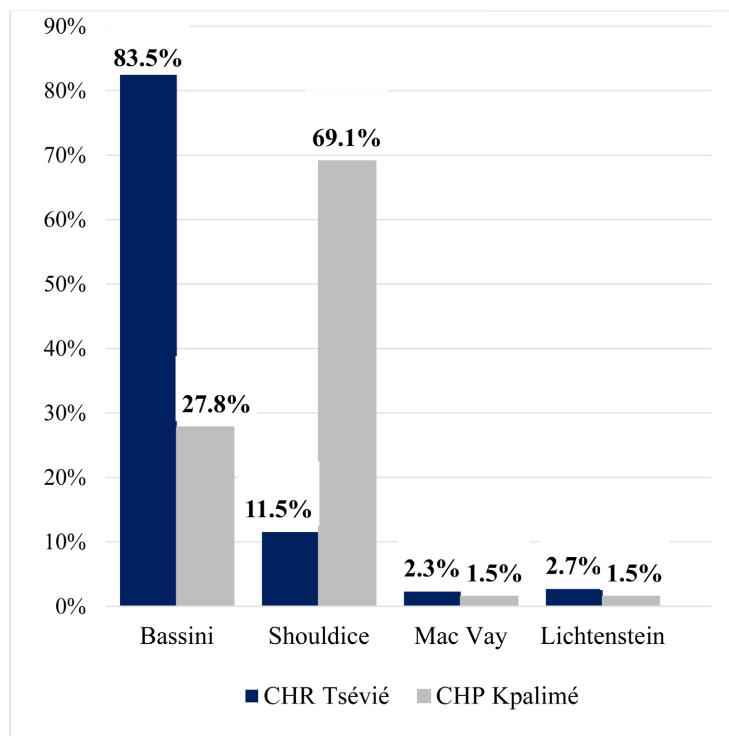


Figure 1. Displaying the distribution of inguinal hernias in accordance with the treatment technique.

Table 3. Displaying the distribution of umbilical hernias in accordance with the treatment technique.

		CHR Tsévié		CHP Kpalimé	
		n	%	n	%
Herniorrhaphy	X stitches	30	83.3	50	90.9
	Continuous stitch	3	8.3	2	3.6
Hernioplasty		3	8.3	3	5.5
Total		36	100	55	100

Table 4. Displaying the distribution of epigastric hernias in accordance with the treatment technique.

		CHR Tsévié		CHP Kpalimé	
		n	%	n	%
Herniorrhaphy	X stitches	12	80	38	86.4
	Continuous stitch	2	13.3	3	6.8
	Hernioplasty	1	6.7	3	6.8
	Total	15	100	44	100

PHC-K with $p = 0.5$ non-significant. The deceased patients had intestinal loop necrosis. They had undergone an anastomosis resection or a stomia. Their evolution was marked by a fistula with malnutrition or deep suppuration leading to death. The average period of hospitalisation of the patients was 3.5 ± 6.3 days (extremes 2 to 60 days) at the RHC-T and 3.1 ± 1.2 days (extremes 2 to 20 days) at the PHC-K.

4. Discussions

Abdominal wall hernia is a benign and very common pathology in our environments. Male prevalence is the norm in keeping with strength labour. It mainly affects subjects around the 4th and 5th decades. We considered it necessary to analyze the data of the surgical nursery in the two towns with similarities on the technical platform and, the homogeneity of the populations facilitated this approach. Of course, this work enriches our data on the treatment of the hernia and highlights the surgical practice as carried out in the field, but it presents biases linked to a retrospective collection. Clinically, inguinal hernia, umbilical hernia and epigastric hernia were the forms found in the two centers. Adabra *et al.* [7] also observed only these three forms in their study on abdominal hernias in 2021 at Aného Hospital (Togo). These results point out once again the rarity of other forms of hernia, namely Spiegel's hernia, ischial, lumbar and obturator hernias; already established in the literature [8]-[11]. Hernia repair represented 30.5% and 41.2% of surgical activities at RHC-T and PHC-K, respectively ($p = 0.001$). This difference may be in connection with data from national health statistics, which shows that the hospital attendance rate at RHC-T (39%) is lower than 58% at PHC-K [12]. The town of Tsévié being the nearest to the togolese capital, a part of its inhabitants would find it easier to get treatment in the hospitals of Lomé. From a point of view relating to surgical techniques, there was no statistically significant difference between the two centers. Herniorrhaphy was indeed the most practiced in 94.8% of patients at the RHC-T and in 97.1% at the PHC-K, with $p = 0.11$. Mehinto *et al.* [13] made the same observation by reporting the preponderance of herniorrhaphy (98.4%) in their practices in Benin. The use of plates for hernia repair is, therefore rarely adopted in the two study centers and can be explained by a number of factors: the hernial repair plate alone costs 59.09 US dollars

not forgetting the costs of surgical and anesthesia consumables in addition to the surgical procedure, all of which are the responsibility of the majority of patients themselves. The hernia repair in these hospitals without plates costs around 248.83 US dollars. Indeed, the coverage rate by national health insurance was 3.5% and 4.5% respectively in the Tsévié and Kpalimé regions [14]. In the rare cases of hernioplasty by hernial repair plates, they were performed by laparotomy due to the lack of laparoscopic surgical equipment in both hospitals. In accordance with the type of hernia, epigastric and umbilical hernias were mostly treated with “X” stitches, in keeping with the prevalence of small-necked forms of these hernias. Concerning the repair of inguinal hernias, the Bassini technique was widely adopted at the RHC-T versus that of Shouldice at the PHC-K. The choice of the inguinal herniorrhaphy technique depends on the surgeon’s habits, and it is difficult to obtain a consensus in the absence of the undeniable superiority of one technique over the other. However, according to Pélissier *et al.*, the recurrence rate is 6.1% for the Shouldice; 8.6% for the Bassini and 11.2% for the McVay [15]. In the postoperative course, without however observing a statistically significant difference between the two centers, there were more complications (5.3%) and deaths (1.3%) at the RHC-T compared to the PHC-K where they were 3.5% and 0.8%, respectively. In 2021, Adabra *et al.* [7] reported in their study a complication rate of 3.7% and 0.2% of deaths. The difference observed between the two study centers in the postoperative period can be explained by the fact that there were more cases of strangulated hernias (23.1%) and engorged hernias (9.6%) at the RHC-T compared to 16.3% and 8.5% at the PHC-K. Otherwise, in inguinal hernia repair, inguinal neuritis occurs either in primary inguinal hernias or recurrent hernias, respectively 34% and 66% [16] [17]. These complications had not been mentioned because of their absence in the medical record used for these retrospective studies. Among the factors that significantly have an impact on postoperative morbi-mortality of hernias, we can note the ASA (American Society of Anesthesiology) score equal to or greater than three, strangulated forms, the presence of necrosis of intestinal loops, the performance of intestinal resection and anastomosis and the operative duration [18] [19]. Indeed, all the cases of deaths recorded occurred in the postoperative evolution of strangulated hernias. And out of the total of seven deaths in the two centers, six had got necrosis of intestinal loops.

5. Conclusion

This comparative study between these two hospitals located in two different environments with homogeneous populations has made it possible to note a similarity between the two hospitals with a few variations. The differences observed in the nursery of hernial pathology between these two hospitals were not statistically conclusive. The precept idea of carrying out a comparative study on a national scale on hernial pathology is then more than justified in order to confirm or deny the trend observed through this first work.

Conflicts of Interest

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

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