

Original Research Article

Epidemiological, Diagnostic and Therapeutic Aspects of Inguinal Hernias in the Surgical Unit General Overview of the Reference Health Centre (CSRéf) in Fana

Samaké Y^{1*}, Kanthé D², Keita S¹, Koné O², Traore M¹, Traoré S³, Sylla C⁴, Kanté L⁴¹Fana Reference Health Centre, Bamako, Mali²Markala Reference Health Centre, Bamako, Mali³National Institute Of Public Health, Bamako, Mali⁴University Hospital Centre Gabriel Toure, Bamako, Mali

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Abstract: Inguinal hernia is the spontaneous or progressive, temporary or permanent passage of viscera or part of viscera out of the cavity that normally contains it. This passage is made through an anatomically preformed area of weakness in the inguinal canal. The diagnosis of inguinal hernia is primarily clinical (inguinal swelling). **Objectives:** To study the epidemiological, diagnostic and therapeutic aspects of inguinal hernias in the general surgery unit of the Centre de Santé de Référence (CSRéf) in Fana. **Results:** 431 surgical interventions. 147 inguinal hernias including 12 cases of strangulation, The frequency of hernia was 34.11% in relation to surgical procedures, The 15-29 age group accounted for 32.7% of cases, The sex ratio was:35.75 in favour of men, In our study, farmers accounted for 53.06% of the total, Bilateral inguinal hernia which accounted for 57.14%, Patients who underwent para-rectal inguinoscopy accounted for 88.4%, The Bassini technique was used in 70.75% of our patients, The operative follow-up was complicated in 19.73% of our patients, We recorded one case of death (0.7%). **Conclusion:** Inguinal hernia is a common surgical condition, preferentially affecting the male subjects and farmers, with a predominance of young people aged 15 to 25 years.

Keywords: Inguinal hernia, epidemiological, diagnosis, therapeutics, Fana.

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INTRODUCTION

Inguinal hernia is the spontaneous or progressive, temporary or permanent passage of viscera or part of a viscera out of the cavity that normally contains it. This passage is made through an anatomically preformed area of weakness in the inguinal canal [1]. The diagnosis of inguinal hernia is primarily clinical (inguinal swelling). On the other hand, any factors that increase intra-abdominal pressure may promote inguinal hernia and the persistence of the peritoneo-vaginal canal which is especially specific to congenital hernia. The prognosis is poor if strangulation occurs [2].

In France, approximately 150,000 inguinal hernia procedures are performed each year [3]. In Africa, it affects about 4.6% of the population in general surgery [4]. In Côte d'Ivoire, inguinal hernias account for 18% of procedures performed in paediatric surgery departments [5]. In MALI, in the 3rd referral

hospitals (Point G, Gabriel Touré, Kati), the frequency of inguinal hernias represented 10.5% of all surgical interventions [6]. At the CSRéf of Commune I and Commune II in the district of Bamako, inguinal hernia represented 33.8% and 30.22% of the surgeries performed in the general surgery units [7,8].

OBJECTIVES

General objective

To study the epidemiological, diagnostic and therapeutic aspects of inguinal hernias in the general surgery unit of the Reference Health Centre (CSRéf) of Fana.

Specific objectives

- Determine the frequency of inguinal hernias.
- Describe the diagnostic and therapeutic aspects of inguinal hernias
- To describe the morbidity and mortality associated with inguinal hernias.

*Corresponding Author: Dr Youssouf SAMAKE

Fana Reference Health Centre, Bamako, Mali

MATERIALS AND METHODS

This study was conducted in the general surgery unit of the Fana referral health centre. It was a prospective descriptive and longitudinal study running from 1 January 2019 to 31 December 2019, a total duration of 12 months. Data were collected from: A questionnaire for all patients, disease records, anaesthesia records and operative records.

Inclusion criteria

Patients operated on for confirmed inguinal hernia.

Non-inclusion criteria

Patients not operated on or operated on for other diagnoses were not included in this study.

We studied the following variables:

Socio-demographic variables: frequency, age, gender, occupation,

-Clinical examination: topographical varieties, anatomopathological classification

--Treatment: technique, postoperative follow-up.

RESULTS

Socio-demographic data

Frequency

This was a prospective study from 1 January 2019 to 31 December 2019, during which we achieved:

- 431 surgical interventions.
- 147 inguinal hernias including 12 cases of strangulation.
- The frequency of hernia was 34.11% in relation to surgical procedures

Age

Table 1: Distribution of patients by age groups

Age groups (in years)	Workforce	Percentage
0-14	11	07,5
15-29	48	32,7
30-44	20	13,6
45-59	41	27,9
60 years and over	21	18,3
TOTAL	147	100

The 15-29 age group accounted for 32.7% of cases

Sex

Table 2: Distribution of patients by gender

Gender	Workforce	Percentage
Male	143	97,3
Female	4	2,7
TOTAL	147	100

The sex ratio was 35.75 in favour of men

Profession

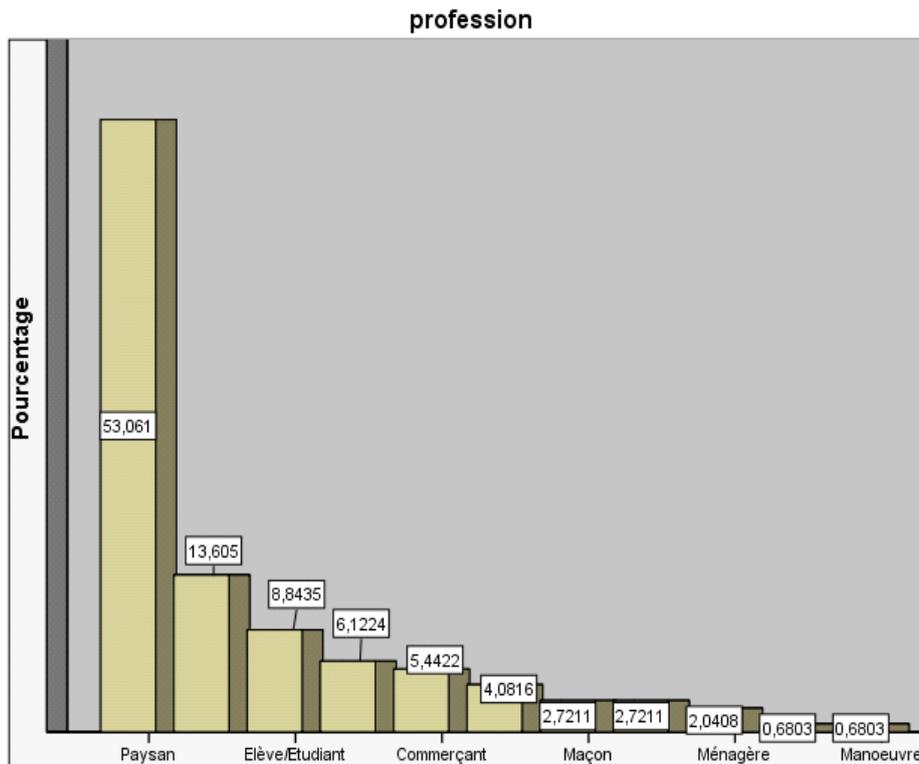


Figure 1: The distribution of patients by profession

In our study, farmers represented 53.06% of the total population.

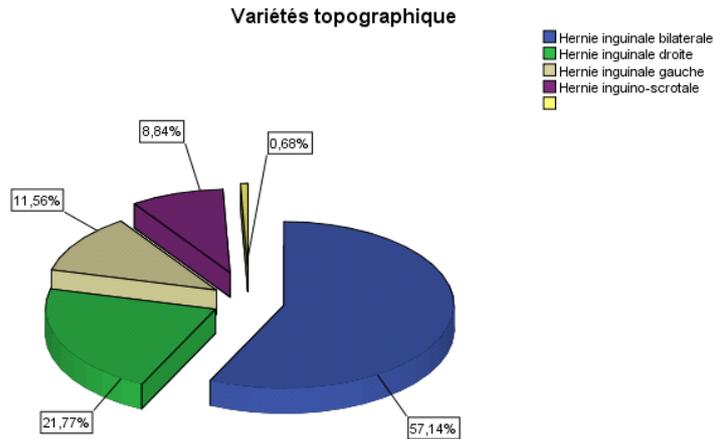


Figure 2: The distribution of patients according to topographical variety
 Bilateral I.H. 57.14%, right I.H. 21%, left I.H. 11.56% of cases

Table 3: Distribution of patients according to approach

Approach	Workforce	Percentage
Para-rectal inguinotomy	130	88,4
Trans rectal inguinotomy	17	11,6
TOTAL	147	100

Patients who underwent para-rectal inguinotomy accounted for 88.4%

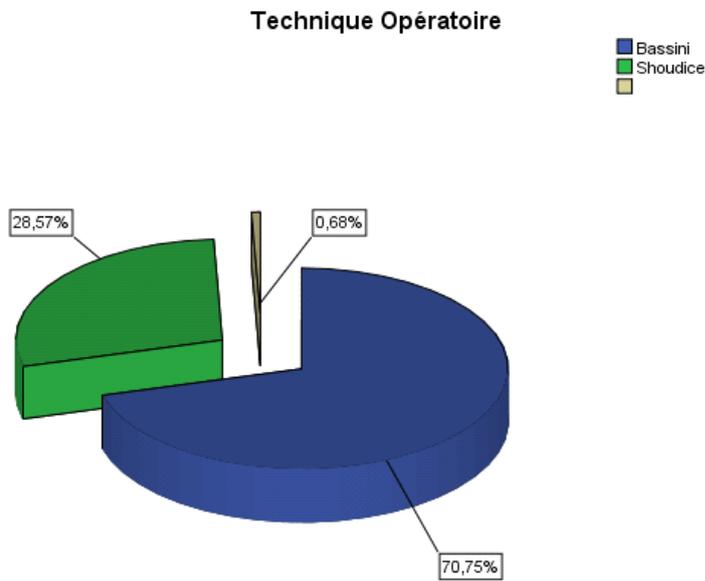


Figure 3: The distribution of patients according to surgical techniques

The Bassini technique was used in 70.75% of our patients
 Shouldice's technique was used in 20.57% of our patients
 N.B.: the Mac Vay technique was used in 0.68% of our patients

Pointe herniaire :forme anato-mo-pathologique

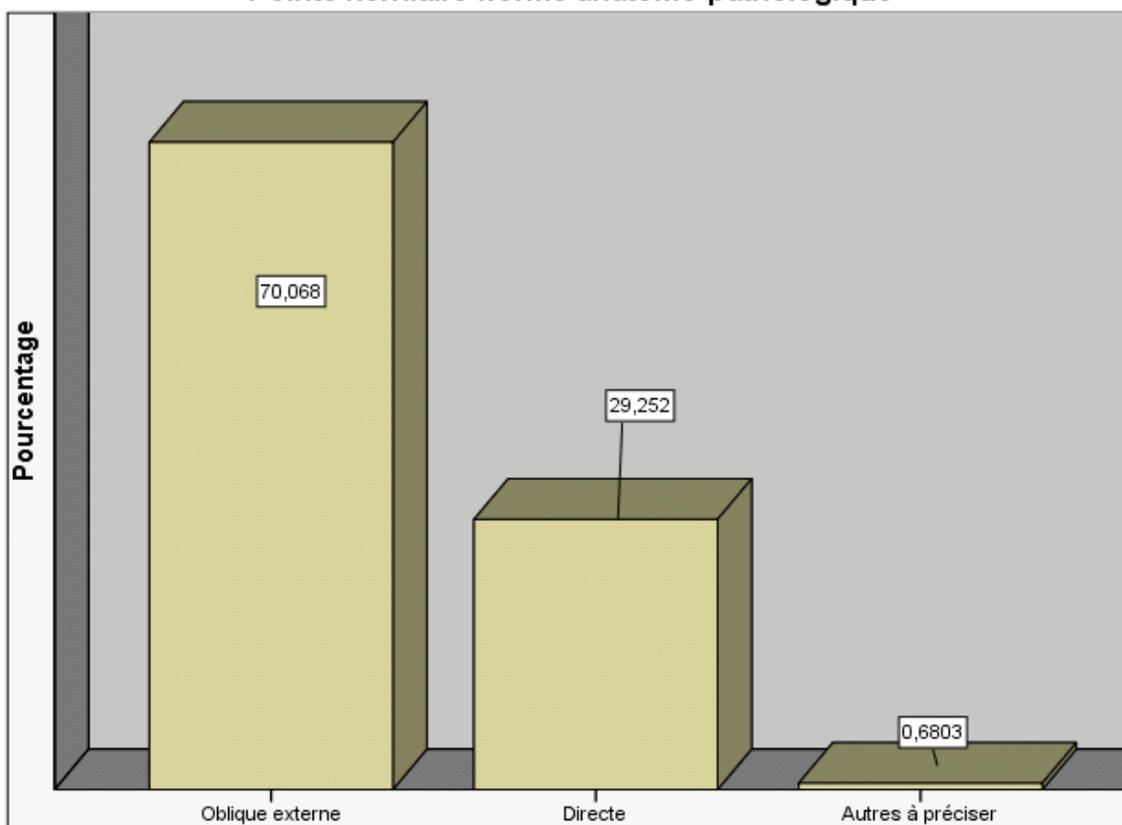


Figure 4: The distribution of patients according to pathological form
The external oblique form accounted for 70.09% of cases

Table 4: Distribution of patients according to postoperative status

Post-operations	Workforce	Percentage
Simple	118	80,27
Complicated	29	19,73
TOTAL	147	100

The operative follow-up was complicated in 19.73% of our patients.

Table 5: Distribution of patients according to the period of occurrence of complications

Types of complications	Immediate	At one month	At three months	Total
Hemorrhage	5	0	0	5
Hematoma	8	0	0	8
Parietal abscess	0	6	0	6
Cheloid	0	4	5	9
Recurrence	0	0	1	1
TOTAL	13	10	6	29

Immediate complications included 5 cases of haemorrhage and 8 cases of haematoma. Complications at one month were marked by 6 cases of parietal

abscess and 4 cases of keloid. Complications at three months were marked by 5 cases of keloid and 1 case of recidivism.

Table 6: Distribution of patients according to their outcome

Become	Workforce	Percentage
Healed	146	99,3
Deceased	1	0,7
TOTAL	147	100

We recorded one case of death (0.7%).

DISCUSSION

Socio-demographic variables

Frequency

Surgical treatment of groin hernias is the most common surgical procedure in Marseille, France [9]. Inguinal hernia is the most common surgical condition in Mali [10].

Table 7: Frequency of inguinal hernias according to authors

Authors	Frequency	Percentage	Statistical test
SANOGO Moussa M [8]	84/278	30,22	0,2873
COULIBALY Moussa B [11]	310/976	31,76	0,0006
Our study	147/431	34,11	

Authors have reported [8, 11] that hernia is the most frequent pathology in surgery general. Inguinal hernia repair accounted for 34.11% of the surgical activities of the general surgery during the period of our study. This could be explained by the fact that our study

was carried out in an environment rural area where the main activity is dominated by agriculture.

Age

Table 8: The average age according to the authors

Authors	Workforce	Average age in years
DEMBELE IB Mali. [6]	106	42,60
KONATE I et Al Dakar. [12]	432	50,50
SANGARE B, Mali. [13]	46	40,00
SANOGO Moussa M [8]	84	43,20
Our study	147	40,46

Our average age was 40.46 years, which is comparable to those of DEMBELE I. B. [6] and SANGARE B [13] who reported 42.6 years and 40 years respectively. On the other hand, KONATE. I et al Dakar [12] reported a mean age of 50.50 years, higher

than the This could be explained by the fact that their sample size is quite large.

Sex

Table 9: The sex ratio according to the authors

Authors	Male	Woman	Number	Sex ratio
HAROUNA Y. et al [10]	198(91,5%)	18(8,5%)	216	11
SAMAKE M. BESY [7]	122(93,8%)	8(6,2%)	130	15,25
SANGARE B. Mali 2002[13]	43(93,5%)	3(6,5%)	046	14,33
Our study	143(97, 3)	4(2,7%)	147	35,75

Gender is a risk factor in relation to occupation and effort. In several studies The male sex was the most represented. HAROUNA Y [10] in Niger, SANGARE B [13] in Mali 2002, as well as SAMAKE M. BESY [7] in Mali 2010 have all found a frequency higher incidence of hernia disease in men. In our series the sex ratio was 35.75 at the risk of men comparable to those

who had reported by the other authors. This male predominance could be explained on the one hand by the configuration of the inguinal canal in humans and the fact that the stressful work most often deployed by men.

Profession

Table 10: The profession according to the authors

Authors	Farmers	Percentage	Statistical tests
SANGARE B [13]	28/43	65,2%	P=0,2214
HAROUNA Y [10]	88/198	44,4%	P=0,1275
Our study	78/147	53,06%	

In our series, 53.06% of our patients were farmers. This occupation occupies a significant part of the country's population. Their large number in our study is explained by the favourable role of repeated intense physical effort characterising this activity. SANGARE B. [13] in his medical thesis and

HAROUNA Y. [10] reported respectively 65.2% and 44.4% of farmers. These results are similar to our own.

Clinical

The type of hernia

Inguinal hernia is most common in its external oblique form. The direct form is related to This is due to the weakness of the posterior wall and is mainly observed in older people [14]. We reported an external oblique hernia rate of 70.07%. This form of hernia

represented 77.38% in Mr. Dieng [14] ($\chi^2= 0.17$; $p= 0.67$), 75% in the series by SANOGO M. MOUSSA [8] and 84.3% for Faik.M et al [15]. ($\chi^2= 2.37$ $p= 0.12$). There was no difference between our results and those of these authors.

The anatomopathological form of the hernia

Table 11: The anatomopathological form of the hernia according to the authors

Authors	Indirect hernia	Direct hernia	Statistical tests
SANOGO Moussa M [8]	63/84 (75,0%)	21/84 (25,0%)	P=0,4506
COULIBALY Moussa B [11]	232/310(74,91%)	78/310(25,09%)	P=0,3087
Our study	103/147 (70,07%)	44/147(29,93%)	

Indirect hernia is the most common anatomical type [8]. In our series, it was 103 cases or 70.07%. Our results are comparable to those of the literature [8, 11].

Treatment

Operating techniques according to the authors

The treatment of inguinal hernias nowadays raises the question of the choice between several surgical techniques (tension cures; non-tension cures) offering results comparable clinical conditions [16]. We used the BASSINI technique in 70.75% of cases. Our study is comparable to those of SAGARA A. [9], HALIDOU A. [17], and MOHAMMED A H [18] who reported 100%, 51.5% and 97.5% of cases respectively made using the Bassini technique.

Several other techniques have been described, including that of Desarda [14], thus demonstrating the diversity in the surgical treatment of inguinal hernias. Indeed, each surgeon has a preferred technique that he or she considers to be the one that gives the best results [11]. We did not use the prosthetic method.

Morbidity

It is related to the terrain, the anaesthesia or the procedure itself [16]. Haematomas, haemorrhages and wall abscesses are the most common immediate sequelae reported. We recorded immediate after-effects marked respectively by: haematomas (5.4%), haemorrhage (3.4%), wall abscess (1.3%) Other authors have reported: HAROUNA Y. [10] 55.8% of infections, SISSOKO M.S. [19]30.54%(wall abscess= 5.56%; hematoma= 13.87%; delayed healing= 11,11%) $p=0,00009$. Our morbidity rate remains lower than that of HAROUNA Y and SISSOKO M.

d-2. Mortality

The mortality of emergency surgery for strangulated inguinal hernia is higher than that of cold surgery and would depend on the length of time the strangulation has progressed, the the existence or not of digestive necrosis, the age and physiological state of the patient [20]. Authors: SISSOKO M.S. [19], HAROUNA Y. [10], SAGARA A. [9] and MOHAMMED A H [18] reported a postoperative mortality rate of : 2,79%, 40%, 1.9% and 25.9%. In our

series, the mortality rate was 0.68% not directly related to the hernia repair. but with an associated lung disease (Chronic Obstructive Pulmonary Disease : (COPD) Konate I [12] recorded 0.23% of deaths not also related to hernia repair. There was no statistically significant difference between our study and that of Konate I. On the other hand, the difference compared to authors [9,10, 19,18] could be explained by the The duration of strangulation due to the delay in management, the defects associated with the pathology (diabetes, respiratory infections, urinary tract infections) and post operating procedures.

d-3. Recidivism

In the 147 patients operated on, we recorded one case of recurrence, i.e. 0.68%, due to the lack of compliance with the instructions given at the time of discharge. The recurrence rate, the only criterion for evaluating a hernia repair technique, cannot be assessed only after a minimum of 2 years [17].

CONCLUSION

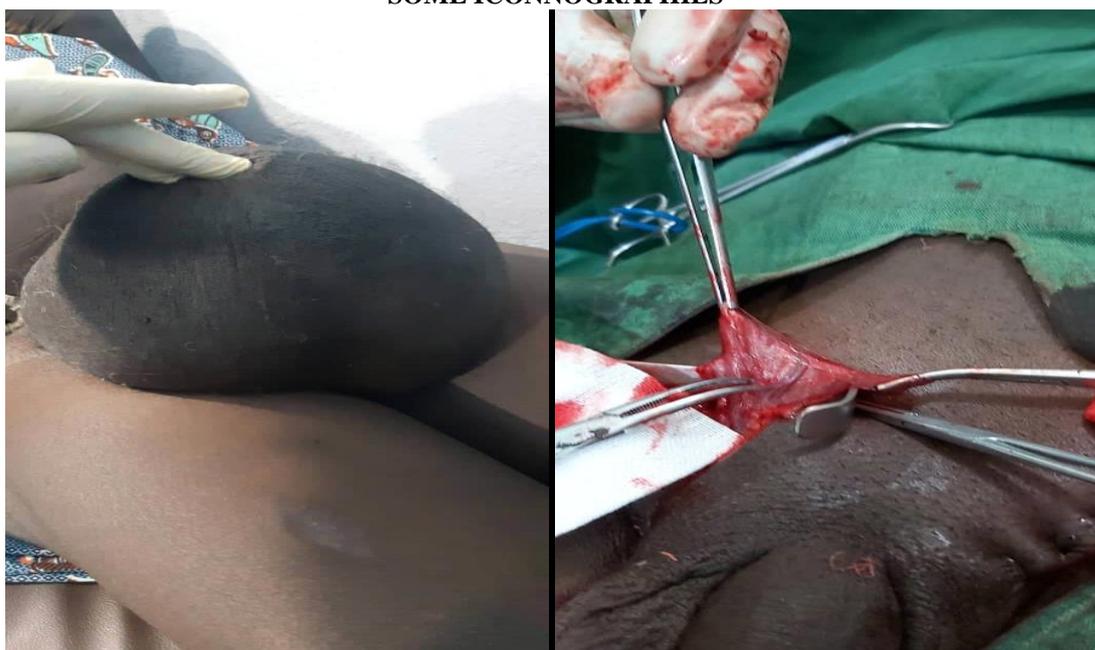
Inguinal hernia is a common surgical condition, preferentially affecting the male subjects and farmers, with a predominance of young people aged 15 to 25 years. The right inguinal hernia occupied the 2nd place, i.e. 21% of cases after the inguinal hernia which accounted for 57.14%. The diagnosis is essentially clinical.

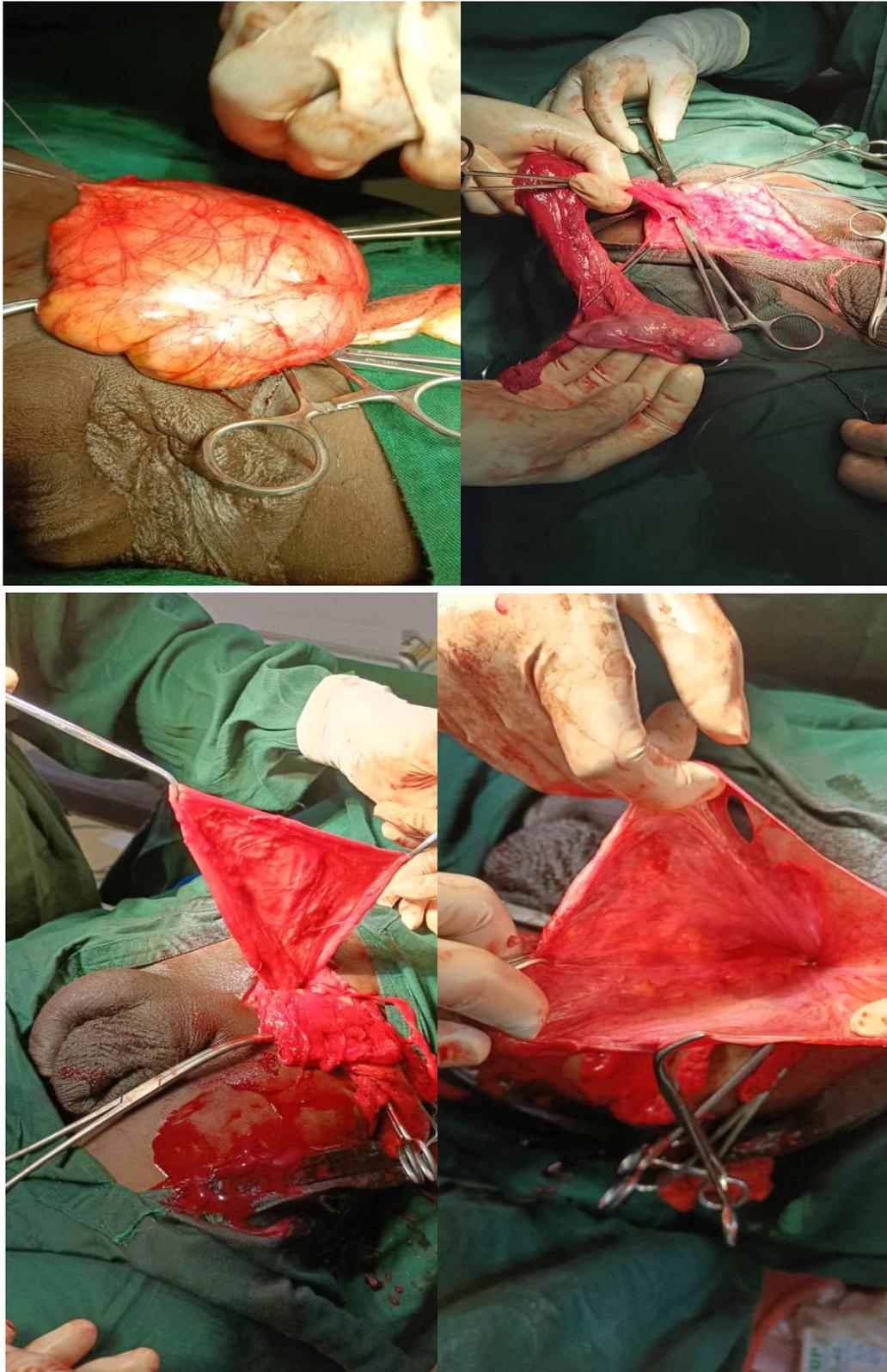
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SOME ICONNOGRAPHIES





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