

# Epidemiological, Clinical and Therapeutic Aspects of Hydrocele at the Fana Reference Health Center

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## Abstract

Described since the 15th century by Ambroise Paré, adult hydrocele is an abnormal collection of serous fluid in the space between the parietal and visceral layers of the tunica vaginalis. It is generally a lesion acquired by attack of the integrity of the vagina, unlike the hydrocele of the child due to the persistence of the peritoneal-vaginal canal. **Purpose:** To study the epidemiological, clinical and therapeutic aspects of hydrocele in the reference health center of Fana. **Methodology:** A descriptive prospective study, conducted from January 1, 2020 to December 31, 2020 of the CSRéf of Fana. **Results:** We collected 66 cases of hydroceles be 16.8% of surgical activities. The average age of disease was  $49.27 \pm 4$  years. The age of 60 to 74 was the most represented with a frequency of 39.4%; Harming during physical activities has been the most common reason for consultation and accounted for 51%. The hydrocele was idiopathic in the majority of our patients in our study, or 65%. The nature of the vaginal fluid was yellow citrin in the majority of patients or 90.9%. Hernie was the most frequently associated pathology with the hydrocele (11 out of 26) or 42%. The Bergman technique was used in 77% of patients and closing the peritoneo-vaginal canal in 23%. Morbidity was 4.5% (3 cases) with hematoma type and 1.5% (1 case) with type of infection. The mortality rate has been zero. **Conclusion:** Vaginal hydrocele is a pathology that remains frequent in tropical regions. Surgical treatment by total vaginal resection with hemostatic overlock gives good results. Its morbidity is low, dominated by intrascrotal hematoma and infection of the surgical site which are generally well controlled by rigorous care.

**Keywords:** Hydrocele, Epidemiology, Clinic, Therapeutics, Surgery.

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## INTRODUCTION

Described since the 15th century by Ambroise Paré [1-2], adult hydrocele is an abnormal collection of serous fluid in the space between the parietal and visceral layers of the tunica vaginalis [1-3]. It is usually an acquired lesion due to damage to the integrity of the vagina, unlike hydrocoele in children due to the persistence of the peritoneovaginal canal.

It is a common condition in urological practice; of various etiologies such as: epididymitis, tuberculosis, trauma, testicular cancer, lymphatic filariasis and other idiopathic etiologies [2]. Its reported prevalence is 6% in neonates and 1% in adults [3]. In

the United States, the prevalence of hydrocele was estimated at 1% in adult males in the Department of Medical School in 2011 [4].

In Africa, a study conducted at the Dapaong regional hospital in Togo showed that hydrocele accounted for 54% of urological surgical activity in 2015 [3]. In Niger, a study done at the National Hospital of Zinder, hydrocele represented 20.45% of urological surgical activity in 2016 [5]. In Mali, hydrocele accounted for 4.5% of surgical activities in the surgical unit at the reference health centre in commune VI of Bamako in 2010 [6].

## OBJECTIVE

To study the epidemiological, clinical and therapeutic aspects of hydrocele in the Fana referral health centre.

## MATERIALS AND METHODS

### Study location

This study was conducted in the general surgery unit of the Fana referral health centre.

### Type and period of study

This was a prospective descriptive study, conducted from January 1, 2020 to December 31, 2020, i.e. a period of one year, in all patients received and treated for hydrocele.

### Data entry and collection

Data were collected using: survey forms; patient records; surgical registers

### Study population/sampling

These were all patients seen in the general surgery unit.

### Inclusion criteria

All patients with diagnosed and operated hydrocele

### Non-inclusion criteria

Non-operated hydrocele cases and any scrotal swelling not identified as a hydrocele.

### Sampling

Patients came on their own or were referred by the district health facilities. All patients were clinically examined on admission; general signs, functional signs, physical signs. The diagnosis of hydrocele was made clinically in front of a scrotal swelling, painless, not impulsive to effort, irreducible associated with a positive trans-illumination.

### Variables

we studied the following variables: frequency, age, reasons for consultation, etiologies, associated pathologies, appearance of the fluid, surgical technique and immediate postoperative follow-up

### Ethical considerations

Patient confidentiality, anonymity and informed consent were respected.

### Data management

Data entry and analysis was done using SPSS 21.0 and Epi info 7. The statistical comparison tests used were Chi-square, Pearson's Chi-square for theoretical numbers less than 5 and P with a significance level of  $p < 0.05$ .

## RESULTS

Frequency ; In 12 months (from 1 January 2020 to 31 December 2020) we collected 66 cases of hydroceles, which represents 11.17 of hospitalizations (66/564) and 16.8% of surgical interventions (66/392).

**Table 1: Distribution of patients according to surgical activities in the department**

| <b>PATHOLOGIES</b>      | <b>WORKFORCE</b> | <b>PERCENTAGE</b> |
|-------------------------|------------------|-------------------|
| APPENDICITIS            | 104              | 26,5              |
| INGUINAL HERNIAS        | 97               | 24,7              |
| HYDROCELES              | 66               | 16,8              |
| ADENOMA OF THE PROSTATE | 22               | 5,6               |
| ECTOPIC PREGNANCY       | 17               | 4,3               |
| OTHER HERNIAS           | 15               | 3,8               |
| OVARIAN CYSTS           | 14               | 3,5               |
| PERITONITIS             | 12               | 3,0               |
| ABDOMINAL TRAUMA        | 10               | 2,5               |
| UTERINE MYOMAS          | 07               | 2,0               |
| OCCLUSIONS              | 07               | 2,0               |
| LIPOMAS                 | 4                | 1,0               |
| OTHER CONDITIONS        | 17               | 4,3               |
| TOTAL                   | 392              | 100               |

Hydrocele was the third most common surgical condition at 16.8%

**Table 2: Distribution of patients by age group**

| <b>AGE RANGE</b> | <b>WORKFORCE</b> | <b>PERCENTAGE</b> |
|------------------|------------------|-------------------|
| [0-14]           | 15               | 22,7              |
| [15-29]          | 2                | 3,0               |
| [30-44]          | 3                | 4,5               |
| [45-59]          | 13               | 19,7              |
| [60-74]          | 26               | 39,4              |
| [75 AND OVER ]   | 7                | 10,6              |
| TOTAL            | 66               | 100               |

The most represented age group was 60-74 years. The average age was 49.27, 4 years and with extremes ranging from 08 months to 80 years.

**Table 3: Distribution of patients by reason for consultation**

| REASON FOR CONSULTATION               | WORKFORCE | PERCENTAGE |
|---------------------------------------|-----------|------------|
| DISCOMFORT DURING PHYSICAL ACTIVITIES | 34        | 51         |
| AESTHETIC PROBLEM                     | 11        | 17         |
| SCROTAL SWELLING                      | 21        | 32         |
| TOTAL                                 | 66        | 100        |

The majority of our patients consulted for discomfort in their physical activities (51%).

**Table 4: Distribution of patients according to etiology**

| ETIOLOGIES           | WORKFORCE | PERCENTAGE |
|----------------------|-----------|------------|
| IDIOPATHIC           | 43        | 65         |
| LYMPHATIC FILARIASIS | 6         | 9          |
| CONGENITAL           | 15        | 23         |
| TRAUMA               | 2         | 3          |
| TOTAL                | 66        | 100        |

Hydrocele was idiopathic in the majority of our patients in our study (65%).

**Table 5: Distribution of patients according to associated surgical pathologies**

| ASSOCIATED DISEASES     | WORKFORCE | PERCENTAGE |
|-------------------------|-----------|------------|
| INGUINAL-SCROTAL HERNIA | 11        | 42         |
| CORD CYST               | 2         | 8          |
| ADENOMA OF THE PROSTATE | 8         | 31         |
| UMBILICAL HERNIA        | 5         | 19         |
| TOTAL                   | 26        | 100        |

Inguino-scrotal hernia was the most common associated surgical condition, accounting for 42%.

**Table 6: Distribution of patients according to surgical technique**

| SURGICAL TECHNIQUE | WORKFORCE | PERCENTAGE |
|--------------------|-----------|------------|
| BERGMANN TECHNIQUE | 51        | 77         |
| LORD'S TECHNIQUE   | 15        | 23         |
| TOTAL              | 66        | 100        |

The Bergmann technique was performed on 77% of our patients.

**Table 7: Distribution of patients according to the nature of the liquid contained in the vaginal**

| NATURE OF THE LIQUID | WORKFORCE | PERCENTAGE |
|----------------------|-----------|------------|
| LEMON YELLOW         | 60        | 90,9       |
| CHYLEUX              | 6         | 9,1        |
| TOTAL                | 66        | 100        |

The nature of the vaginal fluid was citrine yellow in the majority of patients (90.9%)

**Table 8: Distribution of patients according to the immediate postoperative course**

| POSTOPERATIVE EVOLUTION | WORKFORCE | PERCENTAGE |
|-------------------------|-----------|------------|
| SIMPLE                  | 62        | 93,9       |
| INFECTION               | 1         | 1,5        |
| HEMATOMA                | 3         | 4,5        |
| TOTAL                   | 66        | 100        |

The postoperative course was simple in 93.9% of patients.

## DISCUSSION

This was a descriptive prospective study that ran from 1 January 2020 to 31 December 2020, a one-year period. Hydrocele was the third most frequent surgical pathology with 16.8% of cases, behind

appendicitis and inguinal hernia which presented 26.5% and 24.7% respectively.

### Frequency

In our study, hydrocele accounted for 16.8% of the cases of surgical pathology.

**Table 9: Comparison of hydrocele frequencies according to authors**

| AUTHORS        | WORKFORCE | FREQUENCY | STATISTICAL TEST |
|----------------|-----------|-----------|------------------|
| TSHIUNZA MPOYI | 216/1056  | 20,45%    | P=0,1352         |
| DEMBELE H      | 60/500    | 12%       | P=0,04223        |
| OUR STUDY      | 66/392    | 16,8%     |                  |

This result is statistically different from that found by Dembélé H [10], with a P 0.05. This difference could be explained by the duration of the

study and the size of the sample and is comparable to that found by TSHIUNZA MPOYI [8] with a P > 0.05.

#### Age

**Table 10: Comparison of the average age of patients according to the authors**

| AUTHORS         | WORKFORCE | AVERAGE AGE |
|-----------------|-----------|-------------|
| AGBAKWURU ET AL | 50        | 62          |
| TSHIUNZA MPOYI  | 216       | 60          |
| KONE AND COL    | 358       | 47,1        |
| OUR STUDY       | 66        | 49,27       |

The mean age of the patients is lower than those found by Agbakwuru et al [7] in Nigeria and by Tshiuza Mpoyi [8] in DRC. This difference could be explained on the one hand by the youth of our population and on the other hand by the management of hydrocele cases of all ages in the study. And comparable to that of Koné and Col [6].

#### The reason for consultation

Discomfort during physical activities (socio-professional activities) was the most frequent reason for

consultation (60.6%). This result is comparable to that of Halidou Maazou [5] who had 50.6% discomfort during sexual intercourse and in socio-professional activities as the main reason for consultation and differs from that of Coulibaly M.A[9] whose main reason for consultation was scrotal swelling in 78.35%.

#### Surgical technique

The Bergmann vaginal resection technique was performed in 77% of our patients.

**Table 11: Comparison of the surgical technique according to the authors**

| AUTHORS     | WORKFORCE | FREQUENCY | STATISTICAL TEST |
|-------------|-----------|-----------|------------------|
| E.V. SEWA   | 90/119    | 75,6%     | P=0,8584         |
| COULIBALY A | 90/134    | 67,20%    | P=0,1868         |
| OUR STUDY   | 51/66     | 77%       |                  |

This result is comparable to several studies [3],[9] with a statistical test P>0.05. This technique of total tunica resection according to Bergmann has been shown to give good postoperative results with fewer complications and recurrence [6].

#### Immediate postoperative care

The postoperative course was simple in 93.9% of cases. On the other hand, 6.1% of morbidity was observed in terms of surgical site infection (4.5%) due in the majority of cases to a problem of personal hygiene on the part of the patients and scrotal haematoma (1.5%) which could be explained by a defect in haemostasis.

This result is close to that of Sewa et al [3] who found 11% morbidity in terms of surgical wound infection and bursal haematoma, lower than that of Dembélé H [10] who had 38.4% morbidity, 13 cases of scrotal inflammation, 7 cases of bleeding and 3 cases of suppuration. Mortality was nil in our study.

## CONCLUSION

Vaginal hydrocele is a pathology that remains frequent in tropical regions. Surgical treatment by total resection of the vagina with haemostatic overlay gives good results. Morbidity is low, dominated by intra-scrotal haematoma and surgical site infection, which are generally well controlled by rigorous care.

**Conflict of interest:** None

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#### SOME ICONNOGRAPHIES



**Figure 1: Right vaginal hydrocele**



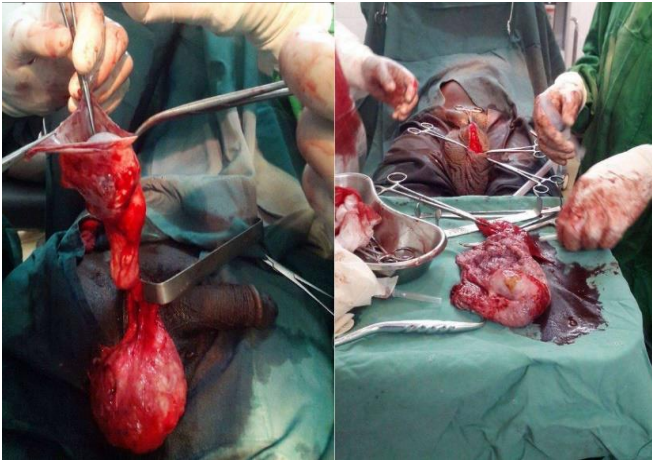
**Figure 2: Local anesthesia**



**Figure 3: scrotal incision**



**Figure 4: Delivery of the hydrocele**



**Figure 5: Opening of the vagina**



**Figure 6: Resection of the vagina**