ORIGINAL ARTICLE

# TESTICULAR AND PARATESTICULAR NON- NEOPLASTIC LESIONS IN UNIVERSITY OF MAIDUGURI TEACHING HOSPITAL: A 10-YEAR RETROSPECTIVE REVIEW.

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## ABSTRACT

**Objectives:** The present study is undertaken to describe the spectrum of histopathological features and age distribution of non-neoplastic testicular and paratesticular lesions in the University of Maiduguri Teaching Hospital (UMTH).

**Materials and methods:** A retrospective descriptive study of 70 testicular and paratesticular non-neoplastic lesions was conducted over a period of 10 years; between January-2005 and December-2014 in the Department of Histopathology, UMTH. Histopathological examination was done after routine processing and staining with Haematoxylin and Eosin. Special stain (Ziehl-Neelsen stain) was done to confirm the presence of acid fast bacilli in cases of tuberculous epididymo-orchitis.

**Results:** There were 70 cases of non-neoplastic testicular and paratesticular lesions of which the majority were inflammatory disorders accounting for 53 cases (75.7%). They included acute orchitis (4.3%), tuberculosis (12.9%), schistosomiasis (8.6%), hydrocoele (24.3%), chronic orchitis (10.0%), epididymal cyst (11.4%) and tumoral calcinosis (4.3%). Other categories of the lesions included congenital abnormalities (10.0%) and traumatic disorder (14.3%). Long-standing hydrocoele was the commonest lesion (24.3%) followed by testicular torsion and infarction (14.3%). The youngest patient was 2 years old and the oldest was 80 years of age**.** The highest incidence occurred in the age range of 30 – 59 years with a total of 25 cases representing 35.7%. The lowest incidence was observed in the elderly ($\geq$60 years) with a total of 21 cases (30%).

**Conclusion:** This study shows that inflammatory disorders are the predominant causes of the testicular and paratesticular non-neoplastic lesions capable of interfering with fertility and mimicking malignancy. There is also the need to emphasise the necessity of proper evaluation and treatment of acute orchitis and microabscess to avoid unnecessary orchidectomy.

**KEYWORDS:** testicular, non-neoplastic, histopathology

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## INTRODUCTION

There are various testicular and paratesticular lesions found in different age groups ranging from paediatric to adulthood[1]. Non-neoplastic lesions or tumor-like proliferation are relatively rare in the testis and paratesticular structures, but are particularly interesting lesions due to the fact that they mimic a malignancy arising from the scrotal sac which results in unnecessary radical orchidectomy[2]. These pseudoneoplastic lesions can simulate neoplastic lesions both macroscopically and microscopically and thus be divided into macroscopic mimickers of testicular and paratesticular neoplasia and microscopic

mimickers of testicular and paratesticular neoplasia[3]. There are different types of testicular and paratesticular non–neoplastic lesions which among others include cryptorchidism, epididymo-orchitis, and torsion of testis[1]. There is scarcity of studies on non-neoplastic Testicular and paratesticular lesions in Northern Nigeria especially in our environment and therefore this may be a source of data and reference of histopathological study.

## MATERIALS AND METHODS

The present study was conducted at the University of Maiduguri Teaching Hospital (UMTH) which is the apex referral centre in the Northeastern region of Nigeria. Its services cover the entire region and the adjoining areas of Cameroon, Chad and Niger republics. The tissue specimens were received from the Department of Surgery in UMTH and other hospitals from the adjoining areas. This is a retrospective study of 70 non-neoplastic testicular and paratesticular lesions diagnosed in the Department of Histopathology of UMTH between January 2005 and December 2014. The patients' clinical data which included age, nature of specimen submitted and the clinical and histopathological diagnoses were obtained from the request forms and case notes.

The histopathological diagnoses were made following routine but proper collection of tissue specimens at the departmental reception. Gross specimens were received in 10% formalin fixative. Thorough gross examination was carried out and salient features were noted down. Thereafter, tissue sections were taken from representative sites. These sections were further processed into automated tissue processor. After processing, the sections were embedded in paraffin to make paraffin blocks. These blocks were then cut serially in three to five micron thickness using rotatory microtome to prepare slides. Slides were then stained using routine Haematoxylin and Eosin stain and then mounted with DPX. A Special stain (Ziehl-Neelsen stain) was performed to confirm the presence of acid fast bacilli in cases of tuberculous epididymo-orchitis. The results are displayed in frequency tables and analysed by simple statistical methods.

## RESULTS

A total of 202 cases of testicular and paratesticular biopsies were recorded during the period of study. Seventy cases (34.7%) were non-neoplastic testicular and paratesticular lesions diagnosed in the department of histopathology of the UMTH between January 2005 and December 2014. Their ages range from 2 to 80 years with a median age of 41 years.

The frequency of major categories of non-neoplastic lesions of the testis and paratestis are as follow: congenital abnormalities, 7 cases (10.0%); traumatic disorder, 10 cases (14.3%); and inflammatory lesions accounting for 53 cases (75.7%). The commonest non-neoplastic testicular and paratesticular lesion was hydrocoele which accounted for 17 cases (24.3%). This was followed by testicular torsion/infarction with a total of 10 cases (14.3%).

Majority of the non-neoplastic testicular and paratesticular lesions were inflammatory disorders with a total of 53 cases (75.7%). They were: acute orchitis (4.3%), tuberculosis (12.9%), schistosomiasis (8.6%), hydrocoele (24.3%), chronic orchitis (10.0%), epididymal cyst (11.4%) and tumoral calcinosis (4.3%).

Table II shows age incidence of testicular and paratesticular non-neoplastic lesions. The highest incidence occurred in the age range of 30 – 59 years with a total of 25 cases representing 35.7%. The lowest incidence was observed in the elderly ($\geq$60 years) with a total of 21 cases (30%). Hydrocoele was the commonest lesion in this study with a total of 17 cases (24.3%), and predominantly occurred in the adult after the 6$^{th}$ decade of life.

**Table I:** Histopathological diagnosis of non-neoplastic testicular and paratesticular lesions

| Diagnosis | Frequency | Percentage (%) |
|---|---|---|
| **Congenital** | | |
| Undescended | 7 | 10.0 |
| **Traumatic** | | |
| Torsion | 10 | 14.3 |
| **Inflammatory** | | |
| Acute orchitis | 3 | 4.3 |
| Chronic orchitis | 7 | 10.0 |
| Tuberculosis | 9 | 12.9 |
| Schistosomiasis | 6 | 8.6 |
| Hydrocoele | 17 | 24.3 |
| Tumoral calcinosis | 3 | 4.3 |
| Epididymal cyst | 8 | 11.4 |
| **Total** | **70** | **100** |

**Table II:** Age incidence of testicular and paratesticular non-neoplastic lesions

| Age group (years) | UND | TOR | AOC | COC | TBC | SCH | HYD | TUC | EPC | Total | Percentage (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| <30 | 5 | 6 | | 1 | 2 | 5 | 2 | | 3 | **24** | **34.3** |
| 30-59 | 2 | 3 | | 1 | 7 | 1 | 4 | 3 | 4 | **25** | **35.7** |
| ≥60 | | 1 | 3 | 5 | | | 11 | | 1 | **21** | **30.0** |
| **Total (%)** | **7(10.0)** | **10(14.3)** | **3(4.3)** | **7(10.0)** | **9(12.9)** | **6(8.6)** | **17(24.3)** | **3(4.3)** | **8(11.4)** | **70** | **100** |

**KEY**
UND – Undescended testis TOR – Testicular torsion AOC – Acute orchitis COC – Chronic orchitis
TBC – Tuberculosis SCH – Schistosomiasis HYD – Hydrocoele TUC – Tumoral calcinosis EPC – Epididymal cyst

## DISCUSSION

Non-neoplastic lesions or tumor-like proliferation are rare in the testis and paratesticular structures. These lesions are of great interest for the fact that they mimic malignancies arising from scrotal sac which could result in unnecessary radical orchidectomy. The average incidence of the tumours arising within scrotal sac is 18% with a range of 6 – 30 %[2]. In this study, the result shows that 34.7% of the cases found within the scrotal sac are non-neoplastic testicular and paratesticular lesions. Majority of the non-neoplastic testicular and paratesticular lesions in this study are inflammatory disorders. Hydrocoeles in adults are acquired and rarely present before the 4th decade of life[4]. They are the most common cause of scrotal swelling in adults; detected clinically or sub-clinically in up to 40% of men[4].

Although congenital hydrocoele (the presence of hydrocoele at birth) do occur as reported by Osifo[5] et at, all of our documented cases are long-standing hydrocoele in adults. In contrast to adult hydrocoele, most congenital hydrocoeles resolve spontaneously[5].

Tuberculous epididymo-orchitis is a common form of genitourinary tuberculosis. It may coexist with pulmonary tuberculosis or tuberculosis of other parts of lower genitor-urinary system. An isolated case of tuberculous epididymo-orchitis is rare but when it occurs, it may mimic testicular tumour[6]. Nine cases (12.9%) of tuberculous epididymo-orchitis were reported in our study in the < 30 and 30 - 59 age groups. Among the 9 cases reported, 2 and 7 cases were seen in the < 30 and 30 - 59 age groups respectively. These findings are similar to results obtained by Patel[1] et al and Khandeparkar[7] et al.

Genitourinary schistosomiasis is a frequent occurrence in Schistosoma endemic regions of the world, although the involvement of testis is rare with varied symptomatology[8]. Testicular schistosomiasis can present as testicular nodule sometimes mimicking malignancy leading to unnecessary orchidectomy[9]. Schistosomiasis of the scrotum has also been documented as a cause of hydrocoele or chronic dermatitis[8]. There was six cases (8.6%) of testicular and paratesticular schistosomiasis reported in this study in the < 30 and 30 - 59 age groups. Five (83.3%) of these cases were reported in < 30 years age group. This result may be considered at variance with other findings which stated that testicular schistosomiasis is very rare that only 12 cases were reported[10]. However, the relatively high incidence as reported in this study may due to the high endemicity of schistosomiasis in our environment. Meanwhile, the finding of this study is similar to other studies as regards to age group and endemicity[8,9,10].

Tumoral calcinosis or idiopathic polypoidal scrotal calcinosis when located in the scrotum is a rare and benign condition of unknown aetiology. It is defined as the presence of multiple calcified and asymptomatic nodules within the scrotal skin without metabolic anomaly[11]. Histologically, tumoral calcinosis is characterized by the presence of calcium deposits of variable sizes often surrounded by foreign body-giant cell granulomatous reaction[11]. We recorded 3 cases (4.3%) of tumoral calcinosis in our study in 30 – 59 years age group. One of the patients aged 38 years, whose histopathological diagnosis is tunical idiopathic calcinosis, presented clinically as a case of primary infertility and tunical cyst. The second patient aged 51 years, presented clinically with paratesticular nodule; while the third patient aged 37 years had presented with scrotal masses. There were no similar lesions in other parts of the body. Bhatnegar[11] et al reported a case of idiopathic calcinosis in a 45-year-old male, similar to the age range of our study. As originally described, tumoral calcinosis is a hereditary or familial type of calcification. However, the term is now also used to describe soft-tissue periarticular calcification because they have similar histological features and management[12].

Epididymal cysts are relatively frequent; most of them are in relation to inflammatory processes and are considered as important macroscopic mimickers of testicular and paratesticular neoplasia[3]. In our study, we reported 8 cases (11.4%) of epididymal cyst. Khandeparkar[7] et al reported 17 cases (36.2%) in their study. This relatively high frequency was due to the fact that the epididymis was the common site (90.9%) of tumour-like lesions in their study.

Each year, testicular torsion affects one in 4,000 males younger than 25 years, and occurs when the spermatic cord twists, with resultant absent or reduced blood flow on the ipsilateral testis[13].

Ten cases (14.3%) of testicular torsion and infarction were reported in our study in almost all age groups. There are 6 cases (60%) recorded in the < 30 years age group. Most patients presented with a complaint of scrotal swelling and pain. One of the patients aged 47 years, had testicular infarction secondary to obstructed inguino-scrotal hernia. Two other cases of testicular torsion/infarction were due to gunshot injuries to the thigh and perineum. Patel[1] et al reported 47 cases in one study with age range similar to our study. The documented high incidence of testicular torsion in males younger than 25 years is similar to our study in which up to 60% of cases of testicular torsion were recorded in < 30 years age group.

Undescended testis or cryptorchidism is the absence of one or both testes from the scrotum and is the commonest genital malformation in boys[14]. Although majority of patients present with undescended testis during childhood with minimal complications, quite a number of patients present during adulthood with complications such as infertility, associated hernia, malignancy and infection[15,16]. We recorded 7 cases (10.0%) of undescended testis in our study. The specimens of 5 cases were received from patients below 30 years of age. All the patients had histopathological diagnosis of features consistent with undescended testis. Two of the patients aged 2 years and 23 years also had congenital hydrocoele in association with the undescended testis. There was no case of malignant transformation. This result is similar to study given by Patel[1] et al. Osifo[16] et al reported 10 cases of orchidectomy specimens from 71 managed cases of undescended testis during a 10-year period with age groups relatively similar to our study.

There were 3 cases (4.3%) of acute orchitis in form of micro-abscesses reported in our study. However, it should be noted that adequate and efficient antibiotic medication is the treatment of choice rather than surgery.

**Acknowledgement**

We wish to acknowledge the contribution of Prof. U.H. Pindiga, Drs A.A. Mayun, A.Z. Bukar, A.I. Adamu and the entire members of staff of Histopathology department as well as all the Surgeons of the University of Maiduguri Teaching Hospital.

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**Cite this article as:** Abba K, Tahir MB, Dogo HM, Nggada HA. Testicular And Paratesticular Non - Neoplastic Lesions In University of Maiduguri Teaching Hospital: A 10-year Retrospective Review. Bo Med J 2016; 13(1):39 - 44.
**Source of Support:** Nil, **Conflict of Interest:** None declared.