

Morphological Pattern of Testicular Biopsies in Zaria, Nigeria

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SUMMARY

Background: Infertility is an established social problem in Nigeria where women have always been blamed for by the society. This serious issue necessitated this review of morphologic patterns of testicular biopsies.

Method: This study was a five-year retrospective histopathological analysis of testicular biopsies sent for histopathological examination at the Ahmadu Bello University Teaching Hospital Zaria - Nigeria (1st January 2001 to 31st December 2005). The slides were reviewed, relevant information were retrieved from histology bench books and request cards.

Result: Testicular biopsies of eighty eight infertile men were examined and most biopsies were from the 35 – 39 years age group in 65.9% of cases. Hypospermatogenesis accounted for 68.2% of patients, while 11.4% had normal morphology. Granulomatous and non-specific orchitis were not uncommon.

Conclusion: This study has highlighted the role of testicular biopsy in male infertility and majority of the selected cases show some pathological changes. Control of sexually transmitted diseases will reduce the burden of male infertility.

Niger Med. J, Vol 48, No.3, Jul - Sept., 2007: 69 - 70.

Keywords: Testicular biopsy, infertility, Zaria.

INTRODUCTION

Testicular biopsy is a commonly performed procedure in the investigation of an infertile patient with azoospermia.¹ For a long time African women have always been blamed for infertility by their male counterparts and this trend however have been found not to be entirely true.^{2,3} Testicular biopsies from selected infertile males is very useful can yield valuable information necessary for the management of these patients.¹

This study aims at identifying germinal epithelial abnormalities which may contribute to male infertility.

MATERIALS AND METHOD

This study was a five-year retrospective histopathological analysis of testicular biopsies sent for histopathological examination at the Department of Pathology of the Ahmadu Bello University Teaching Hospital Zaria (1st

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January 2001 to 31st December 2005).

The relevant slides were retrieved using the laboratory bench books and reviewed by the authors. Relevant clinical information was retrieved from the request cards and analysed using Microsoft® Excel; frequency tables were then generated. The histological features were grouped according to the basic pathological processes and tissue changes (Modified from Thomas³) as follows:

Histological Group

1. Normal spermatogenesis was recorded when tubules were normal sized and germinal epithelium were of normal thickness with adequate number of spermatogonia undergoing spermatogenesis, the basement membrane and tunica propria in addition were thin.
2. Hypospermatogenesis was observed when the tubular epithelium was seen to contain all the stages of spermatogenesis in addition to varying degrees of thickening of basement membrane without interstitial fibrosis.
3. Diffuse tubular atrophy with hyalinization was recorded when there was severe interstitial fibrosis and hyalinosis associated with germ cell loss.
4. Sertoli cell only syndrome was diagnosed when only sertoli cells lined the seminiferous tubules.⁴

Results

Testicular biopsies of eighty eight infertile men were examined and this formed 0.8% of specimens submitted during the study period. Forty-nine (55.7%) patients suffered from primary infertility and twenty-one (23.9%) of secondary infertility; eighteen (20.5%) were not stated. Most biopsies were

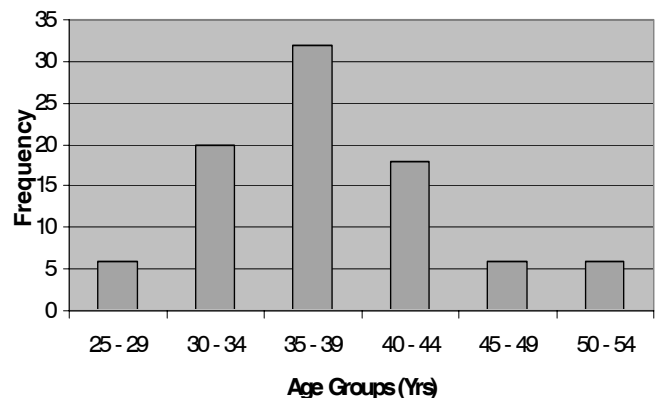


Figure 1: Age Distribution of 88 Infertile Men

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from the 35 – 39 years age group in 36.4% of cases. This percentage however decreases with increasing age. (Figure I).

Table I shows the frequency distribution of histopathological types of testicular biopsies. Majority of the cases examined showed hypospermatogenesis in 68.2% of patients and most of these are severe, while granulomatous and non-specific orchitis constitute 2.3% each. Table II shows the frequency of histopathological patterns of testicular lesions from infertile men in Nigeria. There is preponderance of hypospermatogenesis in the series, followed by diffuse tubular atrophy with hyalinization.

Table 1: Frequency distribution of histopathological types of testicular lesions of infertile men

Histopathological type	No of cases	Percentage of cases (%)
Normal spermatogenesis	10	11.4
Hypospermatogenesis		
Mild	10	11.4
Moderate	20	22.7
Severe	30	34.1
Diffuse tubular atrophy with hyalinization	8	9.1
Sertoli cell only	6	6.8
Granulomatous orchitis	2	2.3
Non-specific orchitis	2	2.3
Total	88	100

Table 2: Histopathological patterns of testicular lesions in infertile men in Nigeria

	Zaria (%)	Jos (%)	Ibadan (%)	Lagos (%)
Normal Spermatogenesis	11.4	8.9	38.2	20.0
Hypospermatogenesis	68.2	52.8	19.1	49.0
Diffuse Tubular Atrophy with Hyalinization	9.1	22.5	23.1	-
Non-Specific Orchitis	2.3	14.0	-	19.0
Granulomatous Orchitis	2.3	0.56	10.0	1.0
Sertoli Cell Only	6.8	0.56	-	3.0

DISCUSSION

Testicular biopsies formed 0.8% of all surgical biopsies received in Pathology Department during the study period. This shows that it is not an uncommon surgical biopsy and may indirectly reflect the burden in the community. Majority of the patients (55.7%) suffered from primary infertility, even though in 20.5% of cases the history is not stated. This is similar to the report by Ojo et al from Ilorin who reported primary infertility accounting for 49.2% of cases (information was not stated in 28.6% of cases).⁵

In developing countries, male infertility is caused mainly by sexually transmitted diseases and frequently affects the much younger maximally sexually active population, similar findings were also reported from developed nations.^{6,7} In this study 65.9% affect young males aged less than 39 years. The peak age incidence was in 35 – 39 years age group. Gonorrhoea and non-gonococcal urethritis may be important.⁸ Some reports recorded

high frequency of Chlamydia and Mycoplasma in cases of non-gonococcal urethritis which contribute to male infertility.²

Causes of male infertility can be classified as pretesticular, testicular or posttesticular, however this study is concerned with testicular lesions. The low frequency of normal spermatogenesis (11.4%) was attributed to meticulous patient selection and this is similar to other studies in parts of Nigeria.^{2,5,8} Hypospermatogenesis is the most common finding in this report accounting for 68.2% of cases. This is similar to 52.8% and 49% from Jos⁸ and Lagos² and contrasts studies from Ibadan³ and Ilorin⁵ which reported 19.1 and 4.8% respectively. The reason for this disparity is unclear, since all the settings are tertiary health institutions in Nigeria and had similar patient selection criteria.

Diffuse tubular atrophy with hyalinization accounted for 9.1% of cases in this study and is similar to separate reports by Mandong⁸ and Thomas.³ Sertoli cell only morphology is seen from infertile men due to hypogonadotropic hypogonadism, cryptorchidism, oestrogen therapy, chemotherapy or Del Castillo's syndrome.⁴ This accounted for 6.8% of cases and is similar to other reports,^{2,8} however since this is a retrospective study we could not screen for these conditions. Granulomatous and non-specific orchitis are not uncommon and are also reported by other authors.^{2,3,8}

The histopathological entities that carry worse prognosis are severe hypospermatogenesis, tuberculous orchitis and genetic diseases.⁸ Unfortunately severe hypospermatogenesis accounted for 34.1% of cases in this report.

This study has highlighted the role of testicular biopsy in male infertility and majority of the selected cases show some pathological changes. Control of sexually transmitted diseases will reduce the burden of male infertility.

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