

## Association Between Testicular Microlithiasis and Infertility

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### ABSTRACT:

#### BACKGROUND:

Testicular microlithiasis (TM) is an uncommon condition, usually brought to attention when some other condition is being investigated. There have been reports suggesting a link between testicular microlithiasis and testicular dysfunction and tumors.

#### OBJECTIVE:

To study the association between testicular microlithiasis and male infertility.

#### MATERIALS AND METHODS:

From January 2010 to January 2011, 140 patients with different scrotal lesions presented to urologic consultation department at Al-Ramadi teaching hospital were included in this prospective study, all patients were examined by gray scale and doppler ultrasonography, their age ranges from 15 to 55 years. All cases of microlithiasis were recorded and complete information obtained from each patient. Seminal fluid analysis (SFA) was done for each patient with microlithiasis.

#### RESULTS:

The age of patients ranges from 15 to 55 years (mean 34.6). Of 140 patients, 6 patients had microlithiasis (4.28%). Of 6 patients with microlithiasis, 5 patients were married and infertile and one of them had varicocele and one patient had testicular atrophy. One patient was unmarried but has varicocele and abnormal seminal fluid analysis.

#### CONCLUSION:

There is strong association between testicular microlithiasis and infertility. Hypospermatogenesis in patients with TM may relate to both the degree of testicular dysgenesis and the presence or absence of concomitant scrotal pathology (eg, scrotal varicocele and testicular atrophy).

**KEY WORDS:** microlithiasis, ultrasonography, infertility.

### INTRODUCTION:

Testicular microlithiasis (TM) is an uncommon condition, usually brought to attention when some other condition is being investigated. It is usually bilateral, asymmetrical, and characterized by small, echogenic, non shadowing foci scattered throughout the testis. Five or more foci per transducer field are required to make the diagnosis of TM.<sup>(1)</sup>

Microcalcification can be found in inside the testicular parenchyma in 0.6-9% of men referred for testicular ultrasound.<sup>(2-4)</sup> Testicular microlithiasis is more often found in men with a benign testicular condition [cryptorchidism, testicular dysgenesis, male infertility, testicular torsion and atrophy, Klinefelter's syndrome, hypogonadism, male pseudohermaphroditism, varicocele, epididymal cysts and non-Hodgkin's

lymphoma) and the microcalcifications themselves are not malignant. Their correlation to these non malignant conditions is well documented<sup>(5-7)</sup>. The clinical importance in terms of symptoms burden and potential malignancy is not well known, micro calcifications themselves are not malignant but they have been reported in association with germ cell tumors in variable proportion. Since the incidence seems to increase with use of high-frequency ultrasound machines, the true incidence in general population is unknown.<sup>(8)</sup>

Testicular microlithiasis has been reported in association with testicular tumors but is present in more than 5% of healthy young men. It has been noted less often in children, and recommendations have been made for noninvasive ultrasound follow-up until adult age. Patients with an increased risk for cancer are infertile men with atrophic testes and microlithiasis and patients with known testis cancer and microlithiasis in the contralateral testis<sup>(9)</sup>.

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### PATIENTS AND METHODS:

From January 2010 to January 2011 (140) patients with different scrotal lesions presented to urologic consultation department at Al-Ramadi teaching hospital were included in this prospective study, all patients were examined by gray scale and doppler ultrasonography, their age ranges from 15 to 55 years. All cases of microlithiasis were recorded and complete information obtained from each patient, including age, marital status, fertility and any history of previous testicular surgery. Complete physical examination and Seminal fluid analysis

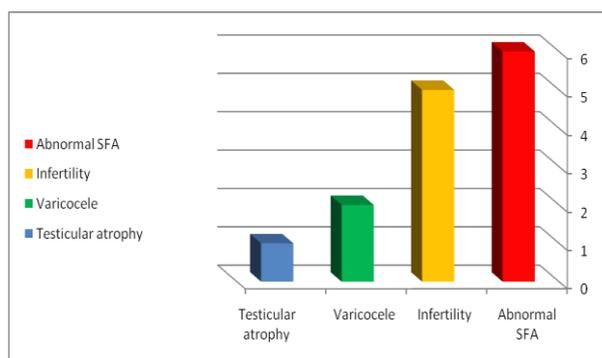
(SFA) was done for each patient with microlithiasis. Sonographic examination done by Siemens sonoline Versa pro machine with color doppler and (7.5 MHz) linear transducer

### RESULTS:

The age of patients ranges from 15 to 55 years (mean 34.6). of 140 patients, 6 had microlithiasis (4.28%). of 6 patients with microlithiasis, 5 were married and infertile and one of them had varicocele and one patient had testicular atrophy. One patient was unmarried but has varicocele and abnormal seminal fluid analysis. Table (1), Figure (1)

**Table 1 :Total number of patients, percentage of patients with microlithiasis and percentage of associated findings**

Total Number	140		
Testicular microlithiasis	N.(%)	Associated findings	N.(%)
	6(4.2%)	Abnormal SFA	6(100%)
		Infertility	5(83.3%)
		Varicocele	2(33.3%)
		Testicular atrophy	1(16.6%)



**Figure 1: The associated findings in patients with microlithiasis**

### DISCUSSION:

Testicular microlithiasis is more often found in men with a benign testicular condition [cryptorchidism, testicular dysgenesis, male infertility, testicular torsion and atrophy, Klinefelter's syndrome, hypogonadism, male pseudohermaphroditism, varicocele, epididymal cysts and non-Hodgkin's lymphoma) and the microcalcifications themselves are not malignant. Their correlation to these non malignant conditions is well documented.<sup>(5,7)</sup>

Since the first description of this ultrasonographic entity,<sup>(10)</sup> many studies have answered several important questions about the pathogenesis of this condition, however their biological meaning is not well known. Several authors suggested that testicular microlithiasis

should be considered a premalignant condition but since wide variation in the reported incidence of testicular microlithiasis in men with germ cell malignancy has been reported between different studies (6-75%),<sup>(2,11,12,13)</sup> the prognostic value of this entity as a precancerous lesion for testicular cancer remains controversial.<sup>(14)</sup>

In our study there was strong association between testicular microlithiasis and infertility, where all five married patients were infertile and had abnormal SFA parameters and the unmarried patient also had abnormal SFA parameters. Also 2 patients were found to have varicocele and one patient had testicular atrophy and both conditions are known to be associated with infertility. The pathogenesis of laminated

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microcalcifications is probably due to dysgenesis of the testis, with slough of degenerated cells inside an obstructed seminiferous tubule and failure of the Sertoli cells to phagocytize the debris. Secondly, calcification occurs.<sup>(7)</sup> This may explain why microlithiasis is been found to accompany both infertility and non malignant conditions connected to infertility, where in our study testicular microlithiasis was associated with varicocele in 2 patients and testicular atrophy in one patient. So We speculate that hypospermatogenesis in patients with TM may relate to both the degree of testicular dysgenesis and the presence or absence of concomitant scrotal pathology (eg, scrotal varicocele and testicular atrophy).

Similar results regarding the association of testicular microlithiasis with infertility had been reported by Hideyuki et al,<sup>(15)</sup>where strong link with infertility was found.

Although testicular microlithiasis has been connected to testicular cancer <sup>(2,4,11,12,13,16,17)</sup>, there was no case of testicular tumour in our study. This may be due to relatively short duration of the study. Because of this connection between microlithiasis and testicular cancer, all patients should be carefully followed up to detect early stage testicular cancer.

### CONCLUSION:

There is strong association between testicular microlithiasis and infertility. Hypospermatogenesis in patients with TM may relate to both the degree of testicular dysgenesis and the presence or absence of concomitant scrotal pathology (eg, scrotal varicocele and testicular atrophy).

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