



## Evaluation and Outcome of Hypospadias Associated with Testicular Microlithiasis

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### Abstract

**Background:** Hypospadias (HP), as an external genitalia anomaly might be associated with Testicular Microlithiasis (TML) and Undescended Testis (UDT). The aim of this study is to evaluate the results and outcomes of the combination of these associated anomalies.

**Methods:** Patients affected with Hypospadias (HP) patients who were assessed by testicular ultrasonography from January 2014 to December 2016 in Mofid Children's Hospital enrolled in this study. Hypospadias divided into mild and a severe type, and Testicular Microlithiasis (TML) was checked by Ultrasonography (USG).

**Results:** Totally 56 boys with hypospadias enrolled in this study, of which 31 had mild and 25 had severe type. Eight children (14.3%) had UDT. Median age was 1.9 years old. Testicular Microlithiasis (TML) was found in nine (16%) patients. The Incidence of Testicular Microlithiasis (TML) was significantly higher in those patients affected by Hypospadias (HP) who had associated Undescended Testis (UDT).

**Conclusion:** Hypospadias patients associated with testicular microlithiasis and co-existing with undescended testis are mostly prone to testicular dysfunction.

**Keywords:** Hypospadias; Microlithiasis; Undescended testis; Ultrasonography

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### Introduction

Hypospadias (HP) is the most common congenital anomaly of male external genitalia, and the incidence rate is about one in 250 live birth males. Hypospadias can be a symptom of testicular dysgenesis syndrome [1,2]. Testicular Microlithiasis (TML) can be appear by small, multiple, and uniform echogenic foci measuring less than three millimeter in the seminiferous tubules which abnormal testicular parenchyma [3,4]. Association of Testicular Microlithiasis (TML) and testicular germ cell tumor and carcinoma has been reported [5,6], also Testicular Microlithiasis (TML) is more frequent in Undescended Testis (UDT), infertility and other congenital disorders [7,8]. Recent reports have showed that association of genital abnormalities such as UDT has higher risk of impaired testicular function [9-11]. So we decided to assess our cases and report the results and outcome.

### Methods

Medical records of those Hypospadias (HP) patients who were assessed by testicular ultrasonography, treated and followed up in Mofid Children's Hospital from January 2014 to December 2016 were analyzed in this study. Those children who had developmental or chromosomal disorders were excluded. Severity of hypospadias (mild or severe), age at ultrasonography, incidence of Testicular Microlithiasis (TML) on testicular ultrasonography (one or more foci measuring 1 mm to 3 mm in diameter), presence of Undescended Testis (UDT), and birth weight were evaluated.

### Results

Total number of 56 children with hypospadias enrolled in this study, of which 31 had mild and 25 had severe type. Eight children (14.3%) had UDT (6 bilateral and 2 unilateral). Median birth weight was 2435 g, and median age was 1.9 years old. Nine children had associated miscellaneous anomalies (inguinal hernia in 6 and heart anomaly in 3). Testicular Microlithiasis (TML) was finding in nine (16%) patients (unilateral 4 and bilateral 5), in five children with bilateral UDT, one had unilateral TM and 4 had bilateral TM. Figure 1, Co-incidence of Testicular Microlithiasis (TML)



**Figure 1:** Ultrasonographic appearance of Testicular Microlithiasis (TML).

**Table 1:** Characteristics in 56 patients.

Median birth weight	2435 gr
Median age	1.9 years
Type of hypospadias	Mild type 31(55%)
Type of hypospadias	Severe type 25 (TML) (45%)
UDT	8(14.3%) patients
TML	9(16%) patients

was significantly higher in Hypospadias (HP) patients associated with Undescended Testis (UDT).

## Discussion

In the current study we report our patients who have hypospadias associated with Microlithiasis (MLT). Testicular Microlithiasis might be associated with several conditions such as impaired spermatogenesis, testicular cancer and carcinoma in situ [5,6]. Although the etiology of hypospadias is unknown and multifactorial, but impaired development of fetal testis can increase the risk of hypospadias. Drut R, et al. [4] declared that testicular microlithiasis may be related with sertoli cell dysfunction and impair embryogenesis during early stages of testicular development [11]. Wohlfahrt-veje C, et al. [12] showed that dysgenetic testis almost always have an irregular ultrasonography pattern and are associated with TML [12]. There are many reports with coexisting of hypospadias and Undescended Testis (UDT) which is a risk factor of Testicular Microlithiasis (TML) as in our study, who were at a higher risk for decreased testicular function even impaired spermatogenesis [9,13]. The prevalence of TML in patients with hypospadias without UDT was 4.2% [14]. Previous studies reported that the incidence of primary testicular tumors in patients with TML ranged from 15% to 45% [6,15], and other reports showed that the rate of TML in asymptomatic population ranged from 2.46% to 5.6%. It is said that TML should be considered a benign condition even in the pediatric age group [15,16]. Suominen JS, et al. [17] have reported 15 cases with neoplasms in their patients group. Moller H, et al. [18] believes that UDT roles as a risk factor for testicular malignancy. European society of radiology believe that the presence of TML alone in adult with no other risk factor does not need regular follow-up, but it is not mentioned in children with hypospadias [19]. But we suggested it in children associated with hypospadias and TML. In recent study of 56 HP cases, eight patients (14%) had UDT, and TML was found in nine (16%). We believe that TML was significantly higher in HP patients associated with UDT.

## Conclusion

Those patients affected with Hypospadias and associated

anomalies including testicular microlithiasis and undescended testis are mostly prone to testicular dysfunction, and TML are significantly higher in HP patients associated with UDT.

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