



## Epididymal Agenesis with Ipsilateral Intra-Abdominal Testis and Controlateral Renal Agenesis

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### Abstract

Cryptorchidism is frequently found associated with epididymal malformation that range from simple epididymal elongation to a complete disruption between the testis and the epididymis. Epididymal agenesis is rarely found in association with cryptorchidism. It is known as the absence of the epididymis totally or segmentally, uni or bilaterally. We hereby present a case of a 4 years old boy presented with right side impalpable testis. Laparoscopic exploration revealed Intra-abdominal testis with short testicular blood vessels associated with the absence of right epididymis. Further investigation showed the absence of the right kidney.

**Keywords:** Epididymal agenesis; Epididymis malformation; Undescended testis (Cryptorchidism); Testicular atrophy; Renal agenesis

### Introduction

The testis and the head of the epididymis arise from the genital ridge, whereas the body of the epididymis and vas deferens derive from the mesonephric tubules of the Wolffian duct. The unions by canalization of the testis and mesonephric tubules begin at 12 weeks and it is probably completed at puberty [1]. Early in the embryonic life, during the fourth to thirteen weeks of gestation, the Leydig cells in the testis secrete the testosterone which acts on the Wolffian ducts (mesonephric) resulting in the formation of the epididymis, vas deferens, seminal vesicle, ejaculatory duct, and the trigone of the urinary bladder [2,3]. Disarrangement of these embryonic sequences, developmental anomalies may happen which range from hypoplasia of all the sperm excretory ducts and seminal vesicles to the epididymal agenesis. Epididymis agenesis could be complete or segmental, uni or bilateral. It may be isolated or associated with other anomalies [2]. Salvatore C. et al. [4] showed in their study that epididymal/testicular fusion anomalies are much more common in cryptorchid patients. A study conducted by Sun-Ouck Kim, showed that epididymal anomalies were more frequent in boys when the undescended testis was at a higher level [3]. In this report, we describe a case of 4 years old boy with right side impalpable testis associated with ipsilateral epididymal agenesis and contralateral renal agenesis.

### Case Presentation

A 4 years old boy presented to the clinic with right side empty scrotum. Clinical examination revealed normal circumcised phallus. The right testis could not be palpated, the scrotum on the right side was undeveloped, and the left testicle was felt normally in the left scrotum. The patient was scheduled for a laparoscopic exploration which revealed, an intra-abdominal right testis, highly situated in the lumbar region, behind the cecum with short testicular blood vessels. The vas deferens was tiny blindly ended in the pelvis at the level of the internal inguinal ring. No epididymis was found connected to the testis either to the end of the vas deferens. In view of the shortness of the testicular vessels, the absence of the epididymis and the impossibility to bring the testis down in the scrotum, in addition to the presence of the normal left testis on the other side, a decision was taken to perform right orchidectomy. The postoperative period was uneventful, and the patient was discharged home the next day. The histology report of the removed testis was unremarkable. On the follow up in the outpatient clinic, ultrasonography was done and revealed the absence of the right kidney (Figure 1-3).

### Discussion

Cryptorchidism is one of the common pediatric problem with an incidence of 6.9% in live males

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**Figure 1:** Laparoscopic view demonstrates:  
A: The Vas deferens is tiny, blindly ending. B: The gubernaculum testis



**Figure 2:** Laparoscopic view demonstrates:  
A: The Rt. testis highly situated with absent if gubernaculum.  
B: Rt. Iliac veins.



**Figure 3:** Laparoscopic view demonstrates:  
A: The Rt. testis retrocecal situated with absent if gubernaculum.  
B: Caecum.

at birth and up to 30.1% in pre-terms [5,6]. Marshall and Shermeta, in 1979 divided the Epididymal abnormalities associated with undescended testis into 3 groups including agenesis of the epididymis, atresia of the epididymis and loop or elongated epididymis [7]. The epididymal anomalies vary according to the number, the size, and also the location, resulting in agenesis or duplication, hypoplasia or hyperplasia, or an ectopic location. It may present as an isolated or associated with other anomalies [2]. These epididymal anomalies could be found as an incidental finding in the surgery of cryptorchidism, hydrocele or even in case of an infertility workup [3], as in our case where the absence of epididymis was noted incidentally during cryptorchidism surgery, while in the case reported by – Badr et al. [8] the absence of epididymis was noted during the investigation of infertility in a 32 years old man, where the vas deferens was directly attached to the testis with the absence of the epididymis. Similar to our case Yu Y, Hong Y reported a 10-month old boy with right side

undescended testis, the preoperative abdominal ultrasonography showed the agenesis of the right kidney [9], while in our case, the absence of right kidney was demonstrated postoperatively by ultrasonography. Also, the management was similar by performing orchidectomy duo to the shortening of the spermatic vessels. Since the function of the epididymis is the maturation and storage of spermatozoa [10]. The point should be taken into consideration that the epididymal anomalies with cryptorchidism may have an effect on the future fertility due to the malformation of the sperm transporting system [11].

**Conclusion**

Surgeons should be aware of epididymal anomalies when dealing with intra-abdominal testis, as these anomalies may affect the future infertility. The finding of a blind-ended vas deferens at the internal ring does not exclude an intra-abdominal testis; the surgeon should follow the gonadal vessels to confirm the absence of the testis. The absent vas deferens found in scrotal or laparoscopic abdominal surgery should lead the surgeon to explore the status of the contralateral vas deferens and conduct an abdominal ultrasonography to detect any renal abnormalities.

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