Management of Undescended Impalpable Testes
M. Amin El Gohary*
Department of Pediatric Surgery, Burjeel Hospital, Abu Dhabi

Abstract
When the testis is not clinically palpable, laparoscopy should be used to identify its abdominal location. It clearly demonstrates the anatomy and provides visual information upon which a definitive decision can be made. Both internal rings can be inspected; the location and size of the testes, their blood supply and the nature, course and termination of the vas, and epididymis can be determined. There are subset of impalpable testis that can be labelled as absent testis during diagnostic laparoscopy, but with careful inspection found to be at its original embryological origin at sub renal position. We hope to increase awareness of such phenomenon to avoid being labeled as absent testis.

INTRODUCTION
Cryptorchidism is a common congenital anomaly of newborns that may resolve, persist or first appear in later childhood. It affects 4% to 5% of full-term and in 9% to 30% of premature males at birth. This figure falls to around 1% to 2% after 3 months, as a significant number will descend spontaneously within the first few months of life.

The testis can be found in any position along its usual line of descent; however, approximately 80% will be located in the inguinal region, just outside the inguinal canal.

Approximately 20% of undescended testes are no palpable, and in 20% to 50% of children with non-palpable testis, the testis is vanishing Laparoscopy has been established as the most reliable diagnostic modality for the management of impalpable testes. It clearly demonstrates the anatomy and provides visual information upon which a definitive decision can be made. All of these anatomical landmarks individually or collectively have bearing on the operative management of Impalpable testes [9-14]. In our series of 1652 UDT seen between 1986-2009, 431 were impalpable representing 26.5% [15].

If no testes are identified during diagnostic laparoscopy, one is left with the possibility of vanishing or absent testes. Vanishing abdominal testes are readily diagnosed when a blind-ending vas meets a leach of flimsy testicular vessels, and are thought to result from a prenatal vascular accident or intrauterine testicular torsion [16]. And if no such findings found the patient will be labelled with diagnoses of absent testis.

Absent testes
The term absent testes has been used in the literature to denote vanishing, atrophied, nubbin of tissue at the end of the spermatic or agenetic testes. Agenetic testes in a 46, XY individual can only occur if the gonadal ridge fails to form or its blood supply fails to develop. Individuals with testicular agenesis may have either a male or a female phenotype. The variable phenotypic
appearances, including the presence of the internal genitalia, relate to the timing during gestation when the testis was lost [17]. The key clinical sign indicating testicular agenesis rather than a vanished testis is the presence of ipsilateral Mullerian structures. True congenital absence of one testis is virtually impossible in a phenotype male with no remnant of Mullerian structures on the affected site.

**Non-descent of the testes**

Non-descent of the testes is a subgroup that may cause confusion about the real status of the testes. They are located at their initial embryological position below the kidneys, in contrast to the high abdominal testes which are present along the line of descent at a variable distance from the internal ring. This entity was realized when, during routine laparoscopy for impalpable testes, a leach of flimsy vessels was encountered entering an open inguinal canal with no vas. The initial impression was that of an absent testis. During further inspection a vas was found hidden under the caecum and going in an upward direction toward the right hypochondrium. When followed the vas was seen to join the epididymis which was attached to a sub renal testis. In 2008 we reported eight testes in 7 patients found at the sub-renal position after an initial finding of no testes and no vas at the pelvic inspection; seven on the right side and 1 on the left. The later belong to a patient with bilateral UDT [18]. We have since found another 4, all were on the right side.

**CONCLUSION**

Subrenal none descended testes represent a variant of abdominal testes that are likely to be missed unless one is aware of its possible anatomical location. In this subset of cases there are no vas at initial laparoscopy and what looks like flimsy vessels represent poorly developed gubernaculum. Based upon embryological facts of testicular development, in a phenotypically normal male it is virtually impossible to be associated with an absent oragenetic testis. The absence of Mullerian remnants means that the there has been a testis at one stage of development that survived well beyond the 9 week of gestation. There are reported cases in which the testis was absent during initial laparoscopy and was subsequently found under the renal lower pole; which makes laparoscopic examination of the site of origin below the kidneys an essential step in all cases apparent absent testes. We do believe that testicular absence does not exist in normal males and that cases that were labeled as (absent testes) should be re-scoped to exclude sub-renal testes. The manuscript outlines the management and intra-operative findings in boys with impalpable testes. There is no data provided, rather just a description of management options. Whilst these are all covered in appropriate way, neither the abstract nor the main text outline the aims of the paper so it is not clear what this manuscript adds to the literature as this information is what I would expect to find in a text book. That said, on reading and re-reading the paper I suspect the aim of the manuscript is to highlight the risk of missing a testis located by the kidney. If that interpretation is correct then I believe the paper should be revised so that this aim is (a) obvious within the title and (b) clearly stated and focused upon in the manuscript. There should be illustrations/ intra-operative images allowing the reader to compare a blind ending vas in a boy with a vanished testis and an image with no vas in the usual position, but with the vas hidden under the caecum as you describe.

**REFERENCES**