

SUMMARY

The testis is the primary male sex organ normally located in the scrotum. Testicular maldescent represent one of the most common anomalies of childhood. This anomaly occur when the testis fails to descend into the its normal postantal anatomic location, the scrotum. The objective of this work is to review the literature dealing with the testicular maldescent with the purpose of better understanding and better management of this anomaly. According this work contain 14 chapters.

In the 2nd chapter, embryology of the testis is described. The gonad is differentiated into a testis by the 7th week of gestation, many theories have been proposed to explain descent of the testis to the scrotum. Mainly the role of gubernaculum whether by traction of differential growth and intra-abdominal pressure and pituitary gonadotrophins.

In the 3rd and 4th chapter an idea about the anatomy and physiology of the testis is given. The testis has both exocrine function, production of sperms by spermatogenic cells and endocrine function; secretion of testosterone by leydig cells. Also an idea about histological changes occurring in the undescended testis secondary to warmer temperature. Reduced number of germ cells, decreased size of seminiferous tubules with peritubular hyalinization and fibrosis. These changes are more evident after the second year of life.

The 5th chapter shows that the incidence of undescended testis ranges from 3% - 5% in full term infants, in pre-mature infants it is so high 30.3%, after 1 year and in adults it is 0.8%.

The cause of testicular maldescent is not clear and many possibilities should be considered. This is explained in chapter 6 including deficient gonadotrophic hormonal stimulation, gubernacular and structural abnormalities, intrinsic testicular defect, neurological abnormalities and mechanical obstruction.

The 6th chapter shows recent studies that are done on pathophysiology of undescended testis including hormones and paracrine factors and their target tissues that may play a role in testicular descent in an attempts to explain occurrence of this anomaly, these factors, estradiol, descendin, calcitonin gene-related peptide, epidermal growth factor and role of epididymis, gubernaculum, genitofemoral nerve and nucleus and processes vaginalis.

Chapter 7 describes the complications of undescended testis including infertility, malignancy, trauma, torsion, hernia and emotional consequences.

Testicular maldescent retards the production of spermatozoa and the higher and longer the testis resides away from the bottom of scrotum the greater likelihood of damage to the seminiferous tubules.

The maldescended testis is more liable to malignancy than do normally descended one. 6% to 10% of all testis cancer originate in cryptorchid testis. Torsion of undescended testis can occur and infarction of the testis may be more common because of delay in diagnosis.

In the following three 8, 9 and 10 the clinical picture, types and investigations for undescended testis are explained. The undescended testis may be palpable or impalpable. The impalpable one may be intra-

abdominal, canalicular or may be absent from the start. The palpable one may be emergent which lies just outside the external ring or superficial inguinal in the superficial inguinal pouch or high scrotal or midscrotal.

The ectopic undescended testis lies away from the normal path of descent and may be superficial inguinal, perineal, femoral, penile, transverse ectopic or pelvic.

The cardinal symptom of undescended testis is absence of one or both testis from the scrotum. Careful examination is done to determine whether the testis is impalpable or palpable and if palpable it is undescended or retractile. It is important to determine whether the testis has been palpable in the scrotum in previous visit or not.

Investigations may be done for undescended testis include ultrasonography, computed tomography, magnetic resonance imaging, hormonal findings, venography, arteriography and laparoscopy.

Undescended testis should be differentiated from retractile testis, intersex and anorchia.

Chapter 11 is devoted for management of testicular maldescent. This chapter includes hormonal, surgical and laparoscopic treatment. The therapeutic goals in treating a patient with Cryptorchidism are to improve fertility, to make the testis more accessible for physical examination for detection of malignancy, to correct the associated hernia and to alleviate potential psychological stress caused by empty scrotum.

The optimal time for placing the retained testis into the scrotum should be before histological changes in the seminiferous tubules by 2nd year of age.

Hormonal treatment include two types, human chorionic gonadotrophin (HCG) and gonadotrophin-releasing hormone (Gn-RH).

HCG is given by intramuscular injection on alternative days for nine injection, each one of them varied from 500 to 1500IU. Gn-RH is given by pernasal spray, 1.2mg per day for 4 weeks. Success rate for HCG is 23% and for Gn-RH is 50%. Combination of them increase the success rate to 73%.

Most of undescended testis located in the inguinal region and orchiopexy is done through the standard inguinal incision. For high impalpable testis, special techniques of orchiopexy may be needed including orchiopexy by spermatic vessels transection, microvascular autotransplantation and staged orchiopexy.

If the testis is small and atrophic after puberty, it is better to do orchiectomy to avoid malignancy. Follow up after orchiopexy should not be neglected.

Laparoscopy is now the most sensitive and specific procedure to localize impalpable undescended testis and to determine whether a gonad is present or absent. Its accuracy rates range from 88% to 100% and laparoscopy is widely used as the first step in the management of a nonpalpable testis as orchiopexy, spermatic vessels transection orchiopexy, orchiectomy and hernia repair are done by laparoscopy.