Testing the undescended testis

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In this thesis several questions will pass. Some are close to each other, others not. All have one thing in common; they are about the undescended testis. The subjects are categorized from a surgical point of view into three parts; before, during and after surgery.

PART I before surgery

“the decision for operation cannot be made by plebiscite”

Mark M Ravitch, 1910-1989

In surgery, a good pre-operative work-up followed by a correct indication is at least as important as the operation itself. Various arguments to operate on an undescended testis are described. In this first part we discuss some of these arguments and describe the long-term effects if an acquired undescended testis is not operated on at diagnosis. In 20% of the cases an undescended testis is non-palpable. This might be because it is localized in the abdomen, atrophic or absent. Nonetheless, a non-palpable testis can also be situated in the inguinal canal. The question, whether a pre-operative ultrasound is of any value to localize a non-palpable testis, will be answered in chapter one. There is no consensus on the management of acquired undescended testes. Whether these testes should be operated on at diagnosis or a possible spontaneous descent at puberty can be awaited, is subject of debate. Chapter two shows the results of a conservative approach until puberty of acquired undescended testes. An undescended testis can also develop after previous inguinocrotal surgery. Chapter three describes the natural course of those undescended testes. It has been speculated that an undescended testis, situated in the groin, has a higher risk of torsion than a scrotal testis. This would be an argument not to accept the situation of a testis residing in the inguinal canal. In chapter four the risk of torsion of acquired undescended testes - situated in the inguinal canal - is described.
PART II  during surgery

“the devil is in the detail”
Ludwig M van der Rohe, 1886-1969

Whether the undescended testis has previously been in a stable scrotal position, discriminates between a congenital and an acquired form. Chapter five is about the differences in anatomical findings during surgery between these two forms.

PART III  after surgery

“nothing spoils good results as much as follow-up”
Bhogaraju R Rao

As mentioned earlier, there is no consensus on the management of acquired undescended testis. It is debatable whether an orchidopexy at diagnosis or a conservative approach until puberty, is preferable. In the third part of this thesis, the first chapters are about the long-term findings after orchidopexy at diagnosis of acquired undescended testes. In chapter six the long-term results of orchidopexy at diagnosis, in terms of testicular volume, are described. Acquired undescended testes which have been orchidopexied at diagnosis and were seen in long-term follow-up, were found to contain intra-testicular varicoceles. The prevalence and clinical aspects of this finding are demonstrated in chapter seven. Also, acquired undescended testes, orchidopexied at diagnosis and seen in long-term follow up, appeared to have testicular microlithiasis. Chapter eight reports on the prevalence of this finding.

As mentioned in the introduction, assessing the success of orchidopexy, in terms of testis function, is far from simple. The last two chapters of this thesis contain the launch of a new parameter to evaluate the testis function. Chapter nine introduces this new parameter; the testicular $^{18}$F-FDG-uptake as assessed by PET/CT-scan. It provides the normative testicular $^{18}$F-FDG-uptake values in young men as well as the intraobserver and interobserver variation in assessing this uptake.

In chapter ten this PET/CT-scan is used to evaluate the testicular function of congenital unilateral orchidopexied undescended testes.