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Transverse Testicular Ectopia in a Context of Persistence of the Peritoneo-vaginal Duct: A Case Report

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Abstract: True testicular ectopic represent 1% of testicular migration abnormalities. Transverse or crossed form is a very rare form of testicular ectopia. It is defined as an abnormal localization of both testicles in the same hemi-scrotum. Association of a persistence of vaginal process or a syndrome of persistence of the Müllerian canal is more commonand deserves to be underlined. The diagnosis is often intraoperative but can be facilitated by an ultrasound performed preoperatively. Before any case of testicular ectopy, notably an empty scrotum associated with an inguinal hernia, transverse testicular ectopy should be suspected. Orchiopexy in-dartos on both sides after a trans septal lowering of the testicle concerned is the rule. Currently with the development of laparoscopy, management can be performed by open surgery but also depending on the availability of the technical platform and the experience of the surgeon, laparoscopic treatment is possible. Transverse testicular ectopy is a rare form of testicular ectopy. the principle of the treatment consists in the lowering of the testicle in intra scrotum and the orchidopexy. Long-term follow-up of testicules should be systematic because risks of infertility and malignant degeneration exist and are multiplied respectively by six and eight compared to the rest of the population. We report a case, diagnosed in a secondary health center, and review the literature.

Keywords: Transverse Testicular Ectopia, Persistent Peritoneal-vaginal Duct, Orchiopexy

1. Introduction

The transverse testicular ectopia (TTE) is a rare condition in which both testicles occupy a single hemisprotum. This abnormal position may result in a vascular compromise or regulation of the impaired temperature, including the risk of torsion, infertility and testicular cancer [1]. The diagnosis of transverse testicular ectopia is often made intraoperatively when repairing an inguinal hernia or testicular lowering. Diagnostic confirmation is not easy before surgery. The clinical diagnostic criteria are the presence of two testes located in the same hemiscrotum or inguinal canal with an empty contralateral hemiscrotum [2]. In some cases, there are many different clinical presentation modes.

The treatment is surgical and consists of making an orchidopexia. Crossed Ectopic Testis is a rare malformation [1-3]. The transverse testicular ectopia is usually associated with a unilateral inguinal hernia [2].

The association of persistent vaginal process or persistent müllerian duct syndrome with abnormal testicular migrations is not uncommon. Transverse testicular ectopia is a rare abnormality and its association with persistent vaginal

processing deserves to be highlighted. We report a case diagnosed in a secondary structure of the health pyramid in Mali.

2. Case Presentation

This is a 6 month old boy with left inguinscrotal swelling with ipsilateral testis in place, right scrotal emptiness on physical examination. The testicle was non-palpable from birth. The questioning did not find any notion of premature delivery or low birth weight, without a particular family history. An ultrasound of the inguinal region and the bursae revealed a right scrotal emptiness, two left ipsilateral testicles, all in a context of persistence of the peritoneal-vaginal duct such as inguino-scrotal hernia. The rest of the results were unremarkable, in particular without the persistence of the Müllerian duct syndrome. Operative exploration found a wide duct, the opening of which revealed two testes of normal size, normal appearance and morphology with partial epididymotesticular independence. The two vas deferens were fused to their distal parts. We performed in-dartos orchiopexy on both sides intraoperatively after transseptal lowering. The child was examined at 18 months of age, both testes were in place of normal size and consistency for age, and found no significant abnormality associated with it.

3. Discussion

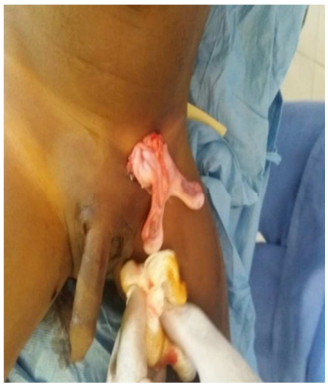

Figure 1. *Transverse testicular ectopia: intraoperative aspect.*

The testicular migration defect is a congenital pathology. It refers to any testicle that is spontaneously and permanently outside the scrotum and whose manual lowering is followed by an immediate return to the initial position as soon as the traction stops [4]. It is the most common congenital malformation of the male reproductive system [2]. Transverse testicular ectopy is a rare pathology often discovered by chance during surgery, also called paradoxical or cross ectopy, or unilateral double testis, or testicular pseudo-duplication. It is defined by the abnormal localization of the two testes in the same hemi-scrotum. True testicular ectopias represent 1% of testicular migration anomalies and the proportion reserved for transverse ectopia remains variously appreciated [1]. From its discovery in 1886 to the present day more than a hundred cases have been published [5-11].

From 1905 to 1977 [12, 13], several theories were finally supported to explain the etiopathogenesis of this pathology among others the development of the two testes from the same germinal crest, that is to say an adhesion and early fusion of the structures of Wolf, either the presence of an aberrant guberniculum-testis or the existence of a defect of the inguinal ring. The notion of anatomical abnormalities (abnormal implantation of the guberniculum, obstruction of the inguinal canal, development of adhesions between testes and adjacent structures) [6, 9]. The diagnosis is most often intraoperative but in some cases preoperative investigations can confirm the diagnosis [9, 10]. In our case, the reason for consultation was a left inguino-scrotal swelling, the physical examination revealed a right scrotal emptiness with the testicle not palpable.

In front of this picture, an ultrasound revealed a right scrotal emptiness, two left ipsilateral testicles, all in a context of persistence of the peritoneal-vaginal duct type inguino-scrotal hernia and without persistence syndrome of the Müllerian duct. Chen KC and Lam WW. [14, 15], emphasized the contribution of ultrasound or even MRI in the preoperative diagnosis. In Hammoudi S's series, the average age was 4 years [6]. Berkmen F and Martin E report some forms discovered in adulthood [5, 8]. TTE can be associated in 13% to 20% of cases with other genitourinary abnormalities: hypospadias, common vas deferens, seminal vesicle cyst, renal dysgenesis, horseshoe kidney, vesico ureteral junction abnormality [9]. Yang C et al. reported two cases of Transverse testicular ectopia associated with persistent Mullerian duct syndrome in adult men in the context of infertility and cryptorchidism [10].

The vas deferens abnormality (fused vas deferens) and the persistence of the peritoneal vaginal canal were noted in our context. This vas deferens anomaly has been noted by another author and may be incriminated in cases of infertility [11]. Persistence of the peritoneal vaginal canal is very often associated with abnormal testicular migration and can affect up to 13 to 80% of cases [16-18]. TTE can be isolated or can exist in a polymalformative context. Mullerian duct syndrome (rudimentary infantile uterus, fallopian ducts), although absent in our case, should be sought because it is present in 30% of TTE cases [11]. Operative exploration found a wide canal, the opening of which revealed two testes of normal size, normal appearance and morphology with partial epididymotesticular independence. The two vas deferens were fused to their distal parts.

We performed in-dartos orchiopexy on both sides after transseptal lowering of the contralateral testis. This technique is defended by many authors and described as the Ombredanne or modified Ombredanne technique [6, 19]. Translocation of the contralateral testis through the other inguinal canal is an attractive alternative and was used by Mahfouz [20] and recently by Jouini [9]. In the literature, children operated on for TTE can maintain normal fertility [20]. About 5% of cases have a risk of developing a testicular tumor [7, 8, 20, 21]. These tumors can be bilateral [20].

Our patient was examined at the age of 18 months, both testes were in place of normal size and consistency for age, and found no notable abnormality associated with it. Despite its favorable findings, long-term follow-up is essential because the risks of infertility and malignant degeneration exist and are multiplied by six and eight respectively compared to the rest of the population [1].

4. Conclusion

Cross-testicular ectopy is a rare congenital testicular defect often discovered by chance intraoperatively. It very often exists in a polymalformative context such as the persistence of the vaginal process or the Müllerian duct. We performed in-dartos orchiopexy on both sides intraoperatively after transseptal lowering. Long-term follow-up is still necessary because the risks of infertility and malignant degeneration exist in adulthood.

Conflicts of Interest

The authors declare that they have no competing interests.

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