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Triorchidism- A Rare Genitourinary Anomaly

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Abstract: *Polyorchidism is defined as the presence of more than two testes. Triorchidism is the most frequent presentation. This anomaly is extremely rare. We report a case of triorchidism presenting with inguinal hernia in a 50 year old male. Intra-operatively, on left side there were two testes which belong to thum type III and one testis on right side. Histologically it was proved. Post-operative sonography confirmed it. Management of polyorchidism is still controversial. The management of polyorchidism will depend upon the location, size and anatomical organization of the testicular drainage system and the age of the patient.*
Keywords: *polyorchidism, triorchidism, histologically.*

I. Introduction

Polyorchidism is an extremely rare congenital anomaly of urogenital system which refers to the presence of more than two testicles.[1] In literature, till date over a hundred cases are reported. Majority of patients are asymptomatic however some may present as painless inguinal or scrotal mass, undescended testes, hydrocele, and rarely torsion of supernumerary testis.[2]

II. Case Report

A 50 year male presented with complaint of swelling in left inguinal region for 45 days and pain over swelling for 15 days. On examination of left side, cough impulse was present, swelling was reducible and testis was present in scrotal sac but was smaller in size as compared to right side. Other physical findings were normal. Family history was unremarkable. Intra-operatively on left side, two testes were present. One of ~2 x 1cm was present at deep inguinal ring simulating inguinal hernia content and another of ~2.5 x 1.5cm was present in scrotum. Both have their own epididymis but having one vas deferens (type III). Orchidectomy of testis presented at deep inguinal ring was done. Biopsy from scotal testis was taken and then orchidopexy was done. Left hernioplasty was done. Histological examination confirmed both specimen were testes. Sonography was done postoperatively which demonstrated right side viable testis of ~3.8 x 1.7cm size with epididymal cyst and left side viable testis of ~2.4 x 1.4cm size with altered echotexture with epididymal cyst. Post-operative period was uneventful.

III. Discussion

Polyorchidism is an urogenital curiosity defined by the presence of more than two testes confirmed by histology. This anomaly is extremely rare and approximately over a hundred cases were described in the literature. Although it can remain asymptomatic, polyorchidism is often associated to processus vaginalis anomalies and undescended testis in childhood. Supernumerary testes can have scrotal, inguinal or abdominal location; they are more frequently on left side and their size is often smaller than both ipsilateral and contralateral testes.[3] As in the present case, triorchidism is present. The cause of polyorchidism remains unclear. The etiology of polyorchidism is thought to be due to accidental longitudinal or transverse division of the genital ridge, with or without mesonephros before the 8th week of gestational life, either through local accident or development of peritoneal bands. Depending on the segmentation plane and site, supernumerary testis may develop with a common or single epididymis and vas deferens. In most cases, the epididymis and vas deferens are shared or missing.[4]

TABLE	Functional classification of polyorchidism based on embryonic development (derived from Thum)
TYPE I	The supernumerary testis lacks an epididymis and vas. The split-off part of the primordial gonad does not communicate with the mesonephric tubules from which the epididymis develops.
TYPE II	The supernumerary testis is linked to the regular testis by a common epididymis and shares a common vas with it. The division of the genital ridge where the primordial gonads are attached to the mesonephric ducts, although the latter are not divided.
TYPE III	The supernumerary testis has its own epididymis but shares the vas with the regular testis.

As in our case, type iii was present.

Polyorchidism is usually identified during repair of inguinal hernia and orchidopexy in children. In our case, it was present as inguinal hernia in adult. Commonly associated anomalies are testicular maldescent (40%), inguinal hernia (30%), testicular torsion (13%), hydrocele (9%), and hypospadias (1%).[5] Infertility is also common finding (20%). There is an increased risk of malignancy if supernumerary testes are detected. According to the literature, the risk of malignancy is estimated to be about 6%. The reported malignancy cases included seminoma, chorio-carcinoma, and teratoma.[6] The polyorchid testis is among the differential possibilities under the category of extra-testicular scrotal masses. Differential diagnosis includes spermatocele, hydrocele, epididymal cysts, fibrous pseudo tumor, adenoid tumor, and papillary cystadenoma.[7]

When a polyorchidism is suspected of palpable mass in the groin or scrotum, sonography is the effective noninvasive modality of investigation. On sonography, an accessory testis usually displays a fine granular echo-texture similar to that in the normal testis. Color Doppler sonography can provide further information about blood flow pattern in the testis. MRI may provide confirmation when the results of sonography are inconclusive.[8]

The management of polyorchidism has been still controversial. In the past it was common practice to remove the supernumerary testicle with removal of smaller masses.[9] More recently, with advances in ultrasound and MRI more conservative approaches have been recommended. Biopsy is a contentious issue and it is not routinely performed.

Some authors claim that conservative treatment is the appropriate choice. They suggest that supernumerary testis, even at ectopic position, should be preserved if they appear normal and are potentially functional. They believed that the absence of any concomitant disorder and if testicular tumor can be ruled out by sonography or MRI, surgical exploration with biopsy could be unnecessary.[5] On the contrary, surgical exploration has the advantage of allowing for fixation of the testes to prevent torsion and determination of testicular outflow tracts and estimating reproductive capacity.[10] Indications for excision include malignant or dysplastic change on biopsy, ultrasound suggestive of malignancy, and absent reproductive potential of the polyorchid testis which lacks an epididymis or vas. In our case, accessory testis was found in adult and was atrophic and located in inguinal canal and preoperative evaluation was not done. It was therefore removed because of the high risk of malignancy.

IV. Conclusion

Polyorchidism is a rare genitourinary abnormality and its management is still controversial. The management of polyorchidism will depend upon the location, size and anatomical organization of the testicular drainage system and the age of the patient. Surgical exploration has the advantage of allowing for fixation of the testes to prevent torsion and determination of testicular outflow tracts and estimating reproductive capacity.

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Pictures

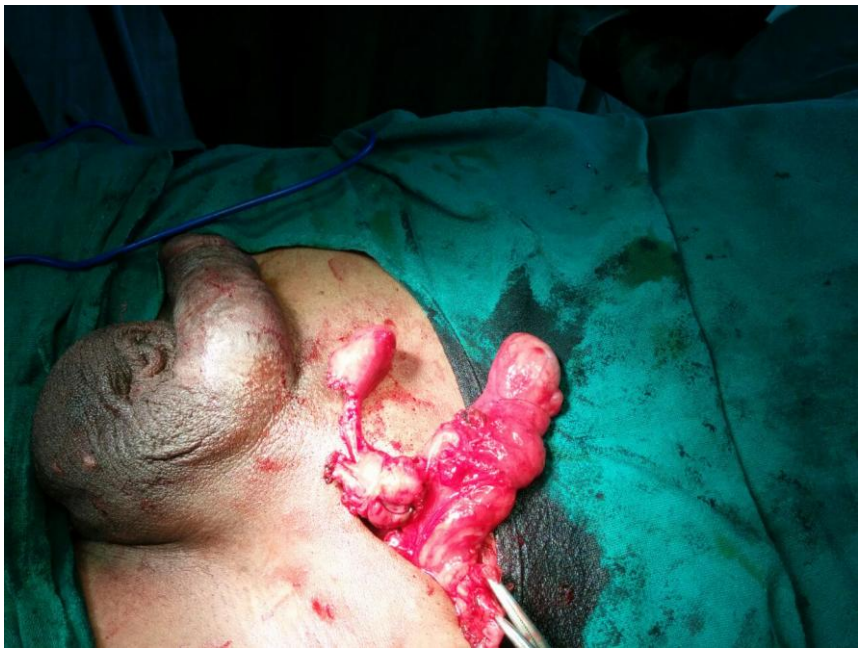

Fig- showing two testes on left side having their own epididymis but sharing a common vas deference