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Surgical Correction of Penoscrotal Web: A Review Article

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Abstract

Penoscrotal webbing (PSW) is an anomaly of penis and it includes penile and scrotal skin aberration and warrants surgical treatment. There are various surgical techniques for repairing PSW with different terminologies. During the management of these children, in the case of suspicion of penile skin abnormality at the time of circumcision, it should be deferred and should be consulted to a pediatric surgeon or a pediatric urologist. Gentle surgical treatment is recommended for a favourable surgical and psychological result.

Keywords: *Penoscrotal Webbing; Surgical Treatment*

Introduction

Keyes first described penoscrotal web (PSW) and he suggested that this anomaly existed when penis lacked its suitable sheath of skin and lied embedded in different sites such as under the skin of the abdomen, thigh or scrotal area [1]. This entity poses significant problems both to patients and to clinicians dealing with this problem [1]. Later on, in 1977, PSW was further defined into either complete or partial [2]. The proximal part of the penis becomes embedded under cutaneous tissue in patients with partial type of this disease while, the penis is completely concealed and the prepuce covers the glans penis in children with complete type of PSW.

As a penile and scrotal skin abnormality, PSW is accepted as a penile disease and the spectrum of buried penis involves this entity inside. Another description of this entity is the invasion of scrotal skin towards ventral site of the penile shaft and it has been suggested that abnormal dartos bands obscure the penoscrotal angle [3]. This abnormal genital appearance is the reason for anxiety which is usually seen in these children and their families (Figure 1). Pain, abnormal stream of urine or genital dysfunction have also been reported [4]. Various surgical techniques have been proposed for PSW with different terminologies [5-8].

Figure 1: *A child with penoscrotal web.*

When the penis remains hidden and embedded under the suprapubic area this condition is called as buried penis [9]. In this disease, penis is completely or partially absent and this depends on the degree of anomaly. The true prevalence of this condition is not known exactly and the condition usually causes distress when circumcision is planned to be performed.

There is an interchangeable terminology on this issue and Maizels., *et al.* [10] in 1986 offered a classification including a "buried penis" with excess suprapubic fat, "webbed penis" involving scrotal skin having a hidden angle between penis and scrotum, "trapped penis" with penile shaft is encastered in the pubic fat either due to trauma or excess circumcision that diminishes penile skin, "micropenis" in which the penile length smaller than two standard deviations below average and "diminutive penis" in which the penis is small due to epispadias/exstrophy, severe hypospadias, etc. Despite these studies, there is no universal consensus on the exact definition of buried penis.

The general accepted theory for PSW is the migration of scrotal skin towards the ventral area of penis [11]. With a loss of penoscrotal angle, it may cause sexual problems during the later adult life of these children. It may also cause psychological trauma due to abnormal appearance [12]. Although there may not be any advantages in daily clinical practice, Koutby and El Gohary suggested a classifying system which included seven subgroups of PSW [12]. Parents of children with PSW are usually anxious due to their feeling that their child's penis is extremely short with regard to child's age. Some cases may present with pain, abnormal stream of urine, local infection, urinary retention and undirected voiding. Associated urethral pathologies like hypospadias are extremely rare in these children.

Several surgical techniques have been proposed in the surgical management of these children [5-8]. These are incision of web transversely and closing vertically, Z-plasty at the penoscrotal junction and penoplasty [11], double-V scrotoplasty [3]. Excision of excess fat is another choice of surgical management of PSW but this method is largely reserved for adult patients [12]. The main aims of surgical treatment are to have exposure of the glans and coronal sulcus, to have a penile skin length equal to the penile shaft length, to have a straight organ and to get a normal penoscrotal angle [13]. Most less severe webbings can be managed with circumcision alone. Although there are numerous techniques that have been reported to correct severe PSW, whichever surgical technique is used, it is important to conserve adequate skin on the ventral aspect of the penis (Figure 2). Other surgical treatment techniques in the management of PSW include turning flaps and reverse Y and complete expansion of the penile shaft [14-19]. What is common in all of these surgical techniques is to perform ventral skin lay over without attaching to the scrotum.

There may be complications following repair of PSW and these are flap necrosis, hematoma formation under the flaps, wound infection, trapdoor effect if Z-plasty technique is used and sloughing of the flaps caused by high wound tension. So a careful surgical treatment is paramount in the management of this disease. Although there is no consensus on the timing of PSW correction, it has been reported that if PSW appears significant on examination, reconstruction of PSW at 6-12 months has been recommended [3]. In the management of these cases, it is important to perform reconstructive surgery for PSW before the achievement of gender identity.

Conclusion

In conclusion, PSW is a condition that warrants surgical treatment. If there is a suspicion of penile skin abnormality at the time of circumcision, it should be deferred and consulted to a pediatric surgeon. Both physical and psychological aspects of PSW have enormous significance. A timely surgical intervention using an appropriate technique ends up with a favourable result.

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