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The conceptual review on Nirudhaprakash (Phimosis)

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ABSTRACT

In Ayurveda Nirudhaprakasha is described as phimosis. Nirudhaprakash (Phimosis) is a Vyadhi (disease), mentioned as one of the Kshudraroga (minor illnesses) in Ayurvedic literature. Phimosis is described as a condition in which the foreskin or prepuce of the glans penis is not retracted backwards, resulting in poor restricted urine flow during urination causing swelling of the foreskin as well as recurrent episodes of balanoposthitis and Urinary Tract Infections (UTI). Most newborn babies have a non-retractable foreskin called physiological phimosis. Physiological phimosis usually does not require any type of treatment because it disappears spontaneously within the first two days. Years which most often takes 3 to 6 years after which measures are considered to correct it surgically? Pathological phimosis is a condition in which the foreskin adheres to the glans as a result of adhesions or scarring caused by infection, inflammation or trauma. Pathological phimosis and physiological phimosis with recurrent attack of balanoposthitis and urinary tract infections require treatment. There are several treatment modalities are available according to severity of adhesions such as local application of steroid cream or oil, manual retraction, dilatation and Circumcision. In this review article we assess the various treatment modalities available in Ayurveda and contemporary medical science for better management of Phimosis.

Key Words: Phimosis, nirudhaprakasha, circumcision, medical treatments

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Introduction

Ayurveda is a great ancient Indian literature of medical treatments. Among which Carak Samhita mainly helps in drug treatment while Sushruta Samhita focuses on treatment surgery. Nirudhaprakasha (Phimosis) is a Vyadhi (disease), mentioned as one of the Kshudraroga (minor illnesses) in Ayurvedic literature which may be related to the phimosis described in modern medicine. Nirudhaprakash is said to be caused by vitiated Vaatdosha, where Charma (prepuce) is constricted and cannot be retracted to uncover the glans, resulting in poor urine flow during urination, causing swelling of the foreskin as well as balanoposthitis and recurrent urinary tract infections. Vaatdoshashaamak treatment i.e. Use of fatty oil ingestion and local application together with the use of Shalakas (dilators) it is recommended for the dilation of the preputial meatus. If that doesn't work, you prefer Charma's split.

About 96% of boys have a non-retractable foreskin at

birth. The incidence of pathological phimosis is 0.4 per 1000 children per year or 0.6% of boys are affected by their 15th birthday. This is far below physiological phimosis, which is common in young children and decreases with age [1]. Phimosis is the inability to retract the preputial skin over the glans. The inability to retract the foreskin only after the age of 3 should be considered true phimosis. In this disease prepuce in non-retractable and completely covers the glans penis causing obstruction to the flow of urine resulting in little flow or weak stream of urine during micturition which may or may not be associated with pain. Acharya Vagbhata called it as Sanniruddha Mani and he has included it in Guhyaroga (disease of genital organ).

Literature Review

Thorough review of literature related to Nirudhaprakash (phimosis) and relevant topics was done through the Ayurved Compendia, various other Ayurved texts and textbooks of contemporary science Modern surgical texts books were reviewed to make all possible similarities and differences. Also various article, journals, pubmed, internet source was referred.

Nirudhaprakash

• AacharyaSushruta has explained Kshudrarogas in Sushrut Nidansthan Adhyay.

• There are total 44 Kshudrarogas mentioned by AacharyaSushruta.

• This no. varies according differentAcharyas, as AcharyaVagbhata, mentioned 36 Kshudrarogas, and Madhavanidaan mentioned 43.

• Parivartika and Nirudhaprakash are two diseases of Shishna explained under Kshudraroga by AacharyaSushrut which can be relate to Paraphimosis and Phimosis according modern medicine respectively.

• Nirudhaprakash Prepuce affected by Vaat, gets adhered to glans, resulting in obstruction in urinary passage.

• This is Nirudhaprakash in which glans does not get exposed and urine comes out with a slow stream and little pain. Su.Ni. 13/52-54

Aetiology

In Ayurveda, it is found as a primary condition in newborns and as a secondary condition due to injury to the foreskin (Avpaatika). Similarly phimosis may be divided into two types physiological which are congenital and pathological which is secondary to inflammatory conditions of the glans or prepuce [2].

Phimosis

Phimosis is the incapability to retract the foreskin over the glans. It is generally seen in children. Physiological phimosis (visible in infants) is because of the insufficient separation of the internal preputial skin from the glans penis. While pathological phimosis happens because of scarring, infection and inflammation ensuing in fibrotic cicatrix of the preputial aperture and hence calls for treatment. Many male new born can also additionally have a prepuce this is adherent to the underlying glans. This circumstance is physiologic phimosis and if there may be issue in retracting the prepuce over the glans is persistent beyond 3 years of age and reasons bulging of foreskin on passing urine.

Penile development and anatomy of a penis

Penis is composed of three tubular structures

1. Two Corpora cavernosa, are covered with Tunica albuginea, and

2. Single Corpora spongiosum.

• **Corpora cavernosa:** These are two tubular structures in apposed to each other. are situated Anteriorly. Vascular spaces are enclosed inside in which arterioles open directly.

• **Tunica albuginea:** It is an outer covering sheath of Corpora cavernosa and forms a septum in between the two cavernosas. It is relatively inelastic.

• **Tunica spongiosum:** Third tubular structure on posterior aspect. It is perforated by urethra, and is continuous distally as glans penis.

• **Arterial supply:** Common penile artery supplies blood to penis which is a branch of Internalpudental artery. It further divides into

a) Deep artery- supplies blood to cavernosa,

b) Dorsal artery- supplies skin, fascia and glans, and

c) Bulbourethral arterysupplies blood to Corpus spongiosum and the glans.

• **Venous return:** Is done by

a. Superficial dorsal vein which further drains into External pudental vein. and

b. Deep dorsal vein, which enters the prostatic venous plexus.

• Parasympathetic nerve supply: Innervates the penis to cause smooth muscle relaxation.

Anatomy of a glans penis

Glans penis: Is an expanded terminal part of Corpus spongiosum as a conical enlargement and is traversed by urethra. Urethra is dilated at glans region and is called Navicular fossa which ends in external urethral orifice.

Corona glandis: Is a base of glans penis and has a projecting margin.

Neck of penis: It is an obliquely grooved constriction overhanging the corona.

Foreskin/prepuce: Is a skin covering the penis and is loosely connected with fascial skin of the organ. It is folded at the neck region. It covers the glans as well and can be retracted backwards completely by exposing the glans in its full extent. It serves many functions; the principle being Protective and immunologic. Glands present on Prepuce and glans produce secretions, which useful resource in lubrication and protection towards infection. The lysozomes contained in those secretions act against dangerous microorganisms.

Frenulum: It is a median fold of the skin under surface of the glans.

Smegma: Prepuceal and sebaceous glands at corona and neck of the penis secrete the sebaceous material and are called as Smegma. It includes desquamated epithelial cells and is trapped below the prepuce. Mostly it's far observed in kids who do now no longer but have a completely retractable foreskin, or in male with bad hygiene. These sloughed epithelial cells shape white lumps below the foreskin, normally positioned round corona. Smegma is absolutely benign.

Diseases of foreskin and glans

Phimosis: It is an inability to retract the prepuce over glans.

Frenulum breve: It is a condition with a short frenulum. It causes pain when foreskin is retracted, or can also cause tearing of frenulum. Mostly it is confused with Phimosis. Frenuloplasty is required in such cases by HeinekeMikulicz principle to lenghthen the Frenulum.

Paraphimosis: Is a condition in which a tight foreskin once retracted may be difficult to return. Or if left retracted for a longer period, swelling occurs at the glans penis due to constriction of the vessels at the corona glandis, causing the foreskin to become trapped behind the glans. This is common among children who have forgotten to reduce the foreskin after micturition of bathing. Or can be seen in patients who have performed Foley's catheterization, where attending has forgotten to reduce the foreskin. It is an emergency, as patient experiences significant painand penile swelling. Thus the prompt reduction is necessary. A constant pressure over swollen glans so as to squeeze it back into the prepuce along with pulling of prepuceal skin is required. Severe cases require dorsal slit procedure, which is usually performed under sedation. If recurrent, circumcision may be needed.

Balanoposthitis: Inflammation of the glans is balanitis, and inflammation of prepuce is posthitis. It can occur secondary to poor hygiene. Treatment usually consists of localized hygiene measures, application of antibacterial ointments and Broad spectrum antibiotics. Recurrent episodes may further lead to adhesions or meatal stenosis or Scarring of prepuce. Scarring of prepuce eventually can lead to pathological phimosis and thus Paraphimosis.

Prepuceal calculi: Chronic posthitis may lead to adhesions between the glans and the prepuce. Here the accumulation of thickened smegma and / Or some urine salts under the non-retractable foreskin can occur. These sloughed epithelial cells form white lumps under the foreskin, commonly located around corona. Which further may lead to formation of prepuceal calculi?

Discussion

Physiological adhesions

At birth, the foreskin adheres to the glans, setting apart those adhesions spontaneously over time, permitting the foreskin to come to be retractable. About 96% of boys have a non-retractable foreskin at start. This is due to the natural adhesions between the foreskin and the glans and the tight skin of the foreskin and the short frenulum. The foreskin will gradually become retractable over a variable period of time from birth to age 18 or older. This is facilitated with the aid of using erections and keratinization of the internal epithelium. Thus the retractable preputial improves with age. In physiological phimosis, the distal part of the foreskin is healthy and pouts with a slight jerk. The narrow component is proximal to the tip of the foreskin. Here a mild traction results in the formation of a cone-fashioned shape with the white and fibrous slender distal component. The beginning of the meatal is also precise. At 1 year of age approximately 50% of boys have non-retractile foreskin. By the age of 4 years 10% and with the aid of using the age 16 years only 1% boys have non-retractile and adherent foreskin. In such instances patient and relatives go to the health practitioner with the foremost complaint of Ballooning of the ordinary non-retractile foreskin on micturition. Here explanation of the condition, reassurance and mild retraction of the foreskin at bath times to assist keep the hygiene are enough OR required. No operative correction is recommended here. Avoid forcible retraction as it can result in fissuring or scarring of the prepuceal opening, which in addition might also additionally purpose true phimosis. 2% of ordinary adult males preserve to have non-retractability for the duration of lifestyles despite the fact that they may be in any other case normal. If one is affected person, and does now no longer rush Mother Nature, maximum foreskin come to be retractile with the aid of using the adulthood [3].

Pathological phimosis: Pathological phimosis defines an inability to retract the foreskin after it was previously retractable or after puberty. Here recurrent episodes of Balanitis or Balanoposthitis or Forceful retraction of the foreskin causes micro tears further leading to scarring and ends in narrowing of the prepuceal opening or the aperture, and narrows it down, becomes tight- resulting in pathological phimosis. This narrowed aperture can sometimes become so tight, that can further cause urinary obstruction. Phimosis in elderly if causes, it is due to the loss of elasticity.

Congenital phimosis: Pinhole meatus and ballooning of prepuce are the major complaints here.

True phimosis: This is visible as a whitish scar at the foreskin. It is uncommon earlier than five years of age and is resulting from a localized pores and skin disorder called Balanitisxeroticaobliterans (BXO), which additionally influences the glans penis and may cause urethral meatal stenosis. It is likewise referred to as as Lichen sclerosusetatrophicus. It is a chronic inflammatory muco-cutaneous condition, wherein the usually pliant foreskin will become thickened. It is whitish in color and forms a tight band (scar) which prevents retraction [4,5].

Clinical features

- Inability to retract the prepuce
- Whitish scarring of the foreskin
- Pinpoint prepuce
- Ballooning of the prepuce
- Balanoposthitis

Complications

- Recurrent balanoposthitis
- **Paraphimosis:** Constricted prepuceal aperture due to phimosis, if once retracted is unable to place back or repositioned it again, and results in paraphimosis.
- Ballooning of prepuceal skin due to narrowing or tightening of prepuceal opening.
- **Prepuceal calculi:** Chronic posthitis if lead towards adhesions between prepuce and glans, the accumulation of thickened smegma may be with some urine salts under the nonretractable foreskin can end up in the formation of prepuceal calculi.
- Retention of urine can cause ballooning.
- In Balanitisxeroticaobliterance, meatal stenosis is seen commonly. Also if the aperture in the prepuce if is as

tight as can cause urinary obstruction [6].

Treatment

In younger baby with non-retractile foreskin, no treatment is necessary or appropriate. In mildly scarred foreskin, preputioplasty is possible. For all different cases circumcision is advised.

BXO: Circumcision is a curative measure along with topical steroid application for affected glans penis. In a required catheterization but where it is impossible, divide the foreskin dorsally under local anaesthesia.

For physiological phimosis: Explanation and reassurance are required here and no operative correction of deformity is advised. Gentle retraction of the foreskin at bath instances facilitates to hold the hygiene. Here forcible retraction should never be attempted as it may further lead to scarring of the prepuce. This physiological phimosis, i.e. presence of preputial adhesions, where the foreskin remains partially adherent to the glans, is normal and resolves spontaneously [7,8].

Contraindications

- Hypospadias
- Epispadias
- Chordeetendinee
- Penile webbing
- Buried penis
- Blood dyscrasias

Conclusion

Phimosis in children is an over-diagnosed situation as mostly it is physiological rather than pathological. Physiological phimosis usually resolves spontaneously during the first years of life without any unpleasant events. Its spontaneous resolution can also be facilitated by the adoption of simple measures such as gentle manual retraction with adequate lubrication and expansion. Pathological phimosis and physiological phimosis persisting after the age of 56 usually requires surgery in the form of circumcision which gives positive results.

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