

## A SYSTEMATIC COMPARATIVE STUDY OF NIRRUDDHAPRAKASH (PHIMOSIS): AYURVEDIC EPICS V/S MODERN MEDICAL SCIENCE

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### ABSTRACT

In *Ayurvedic Samhita NiruddhaPrakash* (phimosis) *vyadhi* (disease) is described to be formed because of vitiated *VataDosha* where constricted *Shishnacharma* (prepuce) covers *Mani* (glans penis). This creates obstructed, slow urine flow and the prepuce could not be retracted. Treatment described in *Ayurvedic* epics is dilatation of *preputial* meatus by *NiruddhaprakashNadiyantra* and *VatadoshShamak* medicated tail (oil) *Pari-shek* (fomentation). Surgery is advised if this measure fails. *Niruddhaprakash* has similar features to that of phimosis described in modern medical science. Recent researches shows that glans penis and prepuce has common epithelium and its complete separation essential for complete perpetual retraction exposing whole of glans may normally occur up to the age of 17 years. This may lead to wrong diagnosis of phimosis. Circumcision is considered as treatment of choice for phimosis.

**Keyword:** *NiruddhaPrakash*, phimosis, Circumcision.

### INTRODUCTION

Ayurveda is considered as great ancient medical treatise. *Ayurvedic Samhita* describes a *Vyadhi* (disease) *NiruddhaPrakash* having similarity to Phimosis. On account of morbidity and mortality of circumcision operative procedure and anesthesia, the review study of *NiruddhaPrakash* and its treatment described in Ayurveda classics gains much importance. Similarly the study of development and separation of prepuce and conservative treatment also becomes important. Foreskin cutting also called male circumcision is done most

commonly worldwide as religious, cultural, medical, personal preference and several other reasons. An estimated one third of males are circumcised globally.<sup>1</sup> Phimosis is the most frequent medical reason for male circumcision where a stricture of the foreskin narrows the opening and prevents it from being retracted to uncover the glans.

### AIM & OBJECTIVE:

1. To describe *Niruddhaprakash* according to *Ayurvedic* Epic

2. To describe Phimosis according to Modern Medical Science
3. To compare Niruddhaprakashvs Phimosis in detail regarding development and separation of prepuce, non-surgical treatment of phimosis for bypass of surgical and anesthetic complications, and surgical procedure with less complications compared to circumcision

#### **MATERIALS AND METHODS:**

Comparative references have been collected from different Ayurvedic Samhita and their commentaries, modern medical text books, and published research articles. Results and conclusions were made as per our study objectives.

#### **DISCUSSION**

##### **Niruddhaprakash in Ayurveda classics:**

Sushrutacharya includes Niruddhaprakash (Phimosis) in Kshudraroga.<sup>2</sup> In AstangaSamgraha it is described as Niruddhamani and included in Guhyaroga (diseases of genitals).<sup>3</sup> Vatadosha vitiated Shishnacharma (prepuce) covers Mani (glans) and occludes Mutrasrota (route of urine flow). This creates Mandadhara (slowed down urine flow) without pain. Here Mani (glans) is always covered with Charma (prepuce), this painful disease is Niruddhaprakash and is formed because of vitiated Vatadosha.<sup>4</sup> Madhukosha description says this disease is also formed if scar of Avapatika (prepusal tear) disease is not healed properly.<sup>5</sup> AstangaSamgraha describes Vata vitiated Charma (prepuce) adheres to front of Mani (glans) creating obstruction to urine flow. Here slow urine flow is present without pain and Mani (glans) could not be uncovered, this disease is Niruddhamani (phimosis).

##### **Treatment of Niruddhaprakash (Phimosis) as described in Ayurvedic classics:**

Acharya Sushrut describes Louhanadi with openings at both the ends is applied with Ghrit to make it smooth, and then to penetrate it slowly in prepusal?? opening. Then Mani parishek is done with Vasa, Majja of crocodile and pig as well as Va-

taghna medicated Chakrataila. After consecutive three days larger nadi should be used in sequence. Snigdhaanna should be given during this treatment. If this treatment fails then surgery can also be done preserving Sevani (frenulum) and it is treated as Sadyakshata.<sup>6</sup> Nibandhasangraha commentary of Susrutasamhita describes Chakrataila as Yantrapidittaila meaning oil extracted by compressing machine.<sup>7</sup> Similar treatment and surgery if needed is advised in Astangahridaya<sup>8</sup> and Astangasangraha.<sup>9</sup>

**Nadiyantra:** Different types of Nadiyantra are described in Ayurvedic Samhita. These are tube like instrument having opening at one or both the ends. These are used to remove foreign bodies from Srotasa, for observation like different speculum, for aspiration, director like fistula director etc. The thickness and length of this instrument is as required for meatus. Niruddhaprakashyantra (prepuce and urethral dilator) is described in Sushrut-samhita.<sup>10</sup>

##### **Phimosis according to Modern Medical Science:**

Phimosis is stenosis of the preputial orifice so that the foreskin cannot be pushed back to expose the glans penis.<sup>11</sup> The physiological adhesion between the foreskin and the glans penis may persist up to the age of 6 years or more. This leads it to be much over diagnosed. The tight prepuce may cause urinary obstruction. Masking of meatal atresia by tight prepuce causing urinary difficulty with residual urine may be present. This may create back-pressure on ureters and kidney. Balanitis Xerotica Obliterans can cause phimosis in later life. In this the foreskin become thickened and will not retract, leading to problem with hygiene and increased susceptibility to carcinoma.<sup>12</sup>

##### **Development and Separation of Prepuce:**

In fetus, the prepuce appears at eight weeks as a ring of thickened epidermis growing forwards from the base of glans penis. It grows more rapidly on upper surface than lower leaving the inferior aspect of preputial ring deficient. Pair of outgrowths is pushed out and meet from inferior aspect of the glans. These enclose a tube and become

continuous with the existing urethra. The prepuce grows forwards to tip of the glans by 16 weeks. At this stage, the epidermis covering the glans is continuous with the epidermis of deep surface of prepuce and it consist of squamous epithelium. Later the squamous cells arrange themselves in whorls forming epithelial cell nests. The centers of these degenerate that to form series of spaces. These spaces increase in size and link up to form preputial space. The separation of prepuce by the time of birth varies greatly.

Gairdners observation in a series of 100 newborn revels only 4% with fully retractable prepuce, in 54% the glans could be uncovered enough to revel the external meatus, and in remaining 42% even the tip of the glans could not be uncovered.<sup>13</sup>

Work in Kayaba et al, they evaluated 603 Japanese boys 0 to 15 years old and classified preputial status in 5 types: 1 type I - no retraction of prepuce at all, type II - exposure of external urethral meatus only, type III (intermediate) – exposure of glans halfway to the sulcus of the corona, type IV – exposure of glans to above the corona at the site of the preputial adhesion and type V -easy exposure of the whole glans. They defined a tight ring as a stenotic ring that prevented the prepuce from being retracted. They found that before age of 6 months the incidence of types I (completely unretract able) to V (completely retractable) prepuce was 47.1, 21.5, 29.4, 2 and 0% respectively. None of the 111 boys younger than 1 year with a type V prepuce, in the 3 to 4 year-old boy's types I and V prepuce were in 6.2 and 16.5% respectively. The incidence of types I and II prepuce decreased from 68.6% at ages 0 to 6 months to less than 10% at age 5 years. Of the 11 to 15year-old subjects the prepuce was type V in 62.9%, type IV in 11.4% and type I in none. A tight ring frequently found in infancy but the incidence also decreased with age.<sup>14</sup> Examination of preputial development by Oster in 173 Danish boys 6 to 17 years old, monitored annually for 7 years, reported that the incidence of preputial adhesion decreased from 70% at ages 6 to 7 years to 5% at 16 to 17 years.<sup>15</sup> These findings indicate

that incomplete preputial separation is common and normal in neonates and infants, and preputial separation processes until school age.

#### **Anatomy of Prepuce:**

**Mucosal epithelium:** The mucosal epithelium of male prepuce is same as mucosal epithelium covering glans penis. The inner prepuce and glans penis share a common, fused mucosal epithelium at birth. **Lamina propria of preputial mucosa-** it has loose collagen and it is very vascular leading to common haemorrhagic complications associated with circumcision. **Dartos Muscle-** The delicate attenuated penile dartos muscle surround the shaft of the penis from the prepuce and is continuous with scrotal dartos muscle. It is temperature dependant and allows for the volume changes required for erection. Circumcised penis shows altered response to temperature changes. **Dermis of prepuce-** The dermis of the prepuce consists of connective tissue, blood vessels, nerve trunks, Meissner corpuscles within the papillae, and scattered sebaceous glands. **Outer epithelium (Skin of the prepuce) -** The outer epithelium of the prepuce consists of keratinized stratified squamous cells. Melanocytes, Langerhans cells and Merkel cells are also present. **The Preputial Sac-** It is colonized by Corynebacterium, Gram-negative anaerobes (especially Bacteroidesmelanogemcus), Enterococci, Enterobacteria and coagulase-positive Staphylococci.<sup>16</sup>

**Function of prepuce:** The prepuce completely covers the glans during the years when the child is incontinent. It protects the glans from injury by contact of wet clothes or napkin. It prevents meatal ulceration. The prepuce enhances sexual pleasure due to presence of nerve receptors.

**Treatment of Phimosis: Circumcision:** Baileys and Love's Short practice of surgery book advocates Treatment of phimosis by Circumcision. Pediatricians opinion follow generally more current evidence than those of surgeons, possibly resulting in many unnecessary circumcisions.<sup>17</sup>

**Topical Steroid:** Osrola, in his study of conservative treatment of phimosis in children instructed

both the parents and the patients (when they were old enough to understand) to apply a thin layer of 0.05% betamethasone cream on the prepuce twice a day (in the morning and evening) for 4 weeks. After the fifth day of treatment, they were asked to gently retract the foreskin several times after applying the cream. They were also encouraged to retract the foreskin when they voided and during their daily bath. This shows 82% successful result, 12% partial response after 5 weeks of treatment. After second course and 6 months of follow up 90% had a retractable prepuce without recurrence of phimosis.<sup>18</sup> A study of Treatment of phimosis with topical steroids and foreskin anatomy with use of 0.05% betamethasone ointment on dorsal aspect of prepuce twice daily for a minimum of 30 days and a maximum of 4 months shows successful result in 94.2% of patients irrespective of the type of foreskin anatomy.<sup>19</sup> Pharmacoeconomic study shows that topical treatment of phimosis can reduce cost by 27.3% in comparison with circumcision. Therefore indicate consideration of topical treatment of phimosis prior to the decision to perform surgery.<sup>20</sup>

#### **Preputialplasty:**

Prepuce protects the sensitive skin of the glans, provides additional lubrication and allows greater freedom of movement during sexual intercourse. Preputialplasty is a quick and safe method of preserving preputial function in patients needing surgical relief of a tight but unscarred foreskin.<sup>21</sup>

#### **CONCLUSION**

Niruddhaprakashi is caused by vitiated *Vatadosha* where *Charma* (prepuce) is constricted and cannot be retracted to uncover the glans. Treatment with *Vata dosh shamak* medicines is advised. Dilatation of prepusal meatus is done with Niruddhaprakash-nadiyantra having opening at both the ends.

Medical science shows that epidermis of deep surface of prepuce and the epidermis of glans penis are initially fused. Separation of prepuce from glans penis may not be complete and its extent could be much variable at time of birth. Complete

separation of prepuce from glans penis enabling its complete retraction exposing whole of glans may normally occur up to age of 17 years. These facts must be considered during diagnosis of phimosis. Circumcision is considered as treatment for Phimosis.

Conservative treatment of phimosis with topical steroid using 0.05% betamethasone shows complete preputialre tractability upto 90-94%. Topical steroid treatment is cost effective as well as surgical and anaesthetic complications are bypassed. In those cases where surgical procedure becomes necessary preputialplasty can be considered as good alternative with few complications and the prepuce can be preserved.

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