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Phimosis. Preputial plasty using transversal widening on the dorsal side with EMLA local anesthetic cream

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Abstract

Background/Purpose: In the United States, the treatment of choice for the correction of phimosis is circumcision, whereas in European countries, the condition is usually treated by preputial plasty using Duhamel's method or modified versions. We report our experience in correcting phimosis by preputial plasty using transversal widening on the dorsal side with EMLA local anesthetic cream.

Methods: Twenty-six patients with phimosis were operated on by preputial plasty, under local anesthesia with EMLA cream. A transversal incision is made on the dorsal side of the ring of prepuce, like 3 contiguous Ts, the middle one inverted with the long arm on the preputial mucosa side. The 2 small mucocutaneous flaps of the prepuce are separated and then sutured with interrupted stitches, thus transforming the incisions from T to V.

Results: No postoperative complications were observed. At 1-year follow-up, the cosmetic and functional results were satisfactory.

Conclusions: The technique of preputial plasty that the authors present enlarges the stenotic ring of prepuce by a transversal widening on the dorsal side. The ring of prepuce obtained is wide and symmetrical on its dorsal and ventral sides and therefore cosmetically and functionally satisfactory. It is a good alternative to the more radical circumcision technique.

In pediatric age, the prepuce is almost invariably nonretractile because of physiological balanopreputial adhesions, or else the preputial skin is tight at the tip. In time, it resolves in nearly all boys during the first years of life [1]. It is usually corrected by lysis of the adhesions or with a topical steroid cream [2-4]. This normal condition is clearly distinguishable from *true* phimosis in which the prepuce tip is tightly closed by secondary scarring of the orifice because of balanitis or to aggressive manipulation of the foreskin that has produced numerous microlesions in the ring of prepuce, resulting in cicatricial stenosis. More rarely, true phimosis is a prepuce that is congenitally long and thin at the tip and cannot be retracted on the glans.

We describe our experience in correcting phimosis by preputial plasty under local anesthesia with EMLA (lidocaine-prilocaine) cream, using transversal widening on the dorsal side.

1. Materials and methods

Between 1998 and 2002 we diagnosed true phimosis in 32 patients. Of these, 2 boys had cicatricial phimosis resulting from previous preputial plasty that had left

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extensive fibrosis of the prepuce, making a circumcision operation necessary.

In the other 30 patients, the phimosis was either of congenital origin or caused by previous episodes of balanoposthitis or too aggressive manipulation of the foreskin which had caused tight cicatricial stenosis of the preputial opening.

No selection of patients was carried out apart from the exclusion of boys whose parents would not agree to the procedure under local anesthesia on the grounds that their children would not cooperate. For this reason, 4 patients did not undergo the operation under local anesthesia but were later operated on by the same surgical technique as described below, but under general anesthesia.

A total of 26 patients aged between 3 and 8 years underwent the operation under local anesthesia with EMLA cream (AstraZeneca AB, Sweden) as a day hospital procedure. When balanopreputial adhesions are present, they are released at the time of the first clinical examination so that a sufficient amount of anesthetic cream can be introduced into the balanopreputial space. Lysis of the adhesions is done by the technique of high pressure injection of saline solution into the virtual balanopreputial space, introducing the tip of the syringe firmly into the phimotic ring.

1.1. Surgical technique

Local anesthesia is obtained by applying lidocaine-prilocaine EMLA cream in the balanopreputial space and on the skin of the prepuce 30 to 45 minutes before the operation.

After placing 2 temporary traction threads at the outer edges of the preputial skin/mucosa dorsal line, a transversal line on the dorsal side, 3 mm proximal to the stenotic ring of prepuce, like 3 contiguous Ts, the middle one inverted with the long arm on the preputial mucosa side, is drawn with a skin writing pen and then incised (Fig. 1A, B). By this transverse incision, the 2 small mucocutaneous flaps of the prepuce are widely separated and then sutured with interrupted Vicryl-Rapide 6-0 stitches (Ethicon, Johnson&Johnson, USA), thus transforming the incisions from T to V (Fig. 1C). In this way, a dorsal widening of the ring of prepuce is obtained, which can be *regulated* particularly by lengthening the central vertical long arm of the T on the mucosa side. After local application of a lubricating anesthetic gel, the penis is simply covered with a gauze which is changed, like the gel, each time the patient urinates. The parents are just told to ensure good local hygiene with Betadine solution (povidone iodine, Mundipharma AG) to apply a lubricating anesthetic gel and to see that gentle retraction of the prepuce is performed from the day after the operation.

2. Results

In all cases, the EMLA cream produced good local anesthesia. The operation took 15 minutes on average. No postoperative complications were observed. All the patients were reviewed for the first time 7 days after the operation. None of the children complained of any particular discomfort, and in all of them, the ring of prepuce was wide and easily retractable. At 1-year follow-up, the cosmetic result was satisfactory in all cases, and in particular, the ring of the prepuce appeared wide and symmetrical in its dorsal and ventral sides, and the patient was able to draw it fully over the glans without difficulty, also when the penis was erect.

3. Discussion

Phimosis has never been precisely defined and has been applied to any foreskins which do not retract [5], thus including 96% of newborns and 50% of 1 year olds [1]. True phimosis is a relatively rare condition, and the number of cases tends to be overestimated when it is *diagnosed* in early infancy.

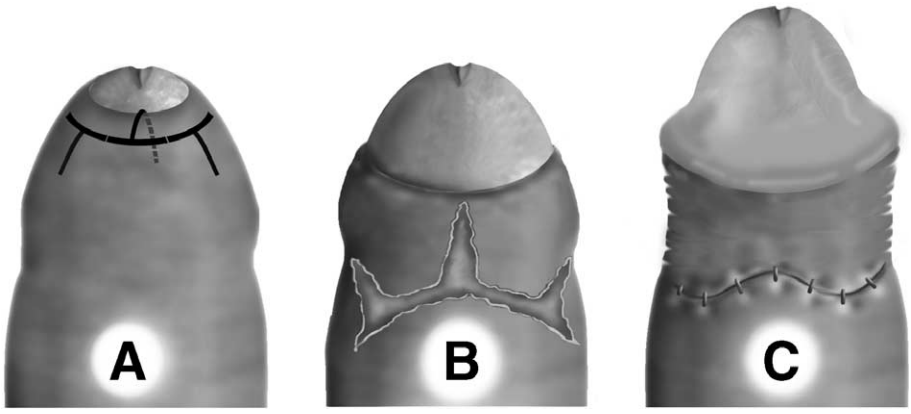

Fig. 1 A, True phimosis. B, After placing 2 temporary traction threads at the outer edges of the preputial skin/mucosa dorsal line, an incision is made on the dorsal side of the ring of prepuce (3 contiguous Ts, with the middle one inverted). C, The 2 mucocutaneous flaps are separated and sutured, thus transforming the incisions from T to V.

In European countries, the surgical technique most used to correct true phimosis is preputial plasty, whereas in the United States, circumcision is the treatment of choice [6]. The decision to remove the foreskin is justified by the consideration that the presence of the prepuce adversely affects hygiene which, according to some debatable reports in the literature, may cause urinary tract infection or penile cancer [6-13]. If this were indeed the case, we would have to consider circumcising almost all boys, thus conceding that an organ that is so important because of its natural selection in man has surprisingly evolved in a *nonutilitarian* way.

In fact, it is likely that circumcision is used not only on strictly medical grounds but also for *religious-cultural* reasons.

Circumcision is also debatable from an anatomical point of view. The procedure involves cutting a nerve in the frenulum of prepuce, leading to a loss of sensitivity in the glans. Circumcised boys can also have episodes of meatitis and reduced sensibility of the glans on account of progressive epithelization of the mucosa because of continual friction of the glans against clothing [14]. Circumcision requires general or locoregional anesthesia and is associated with higher morbidity than preputial plasty [4,15,16].

In the absence of a rare specific condition such as a very extensive preputial scars because of recurrent local infection or from xerotica balanitis et obliterans, circumcision would appear to be too radical an intervention compared with preputial plasty, first used by Duhamel [17] in 1953, in which a median mucocutaneous longitudinal incision is made on the dorsal surface of the prepuce with subsequent transverse suturing. Duhamel's technique, while preserving the prepuce, allows good local hygiene, equal to that with circumcision.

In European countries, circumcision is unpopular particularly on account of esthetic and functional problems; the desire to preserve the prepuce is so ingrained that also in treatments of distal forms of hypospadias the technique often used is that which allows reconstruction of the prepuce [18].

In cases where the prepuce is extensively sclerotic or congenitally long and thin, with Duhamel's technique [18], a long dorsal longitudinal incision may be necessary giving the neoring of prepuce a deep *V* appearance, which is a poor cosmetic result: preputial plasty using Y-V, Z, or triple incision has been proposed as a more esthetic way of widening the stenotic ring of prepuce [19-21].

The technique of preputial plasty that we present enlarges the stenotic ring of prepuce by a transversal widening on the dorsal side. The ring of prepuce obtained is wide and symmetrical in its dorsal and ventral sides and therefore cosmetically and functionally satisfactory.

We were favorably impressed by the response of the children when an operation under local anesthesia was proposed to them. The key to persuading them was to make certain promises: "you won't feel any pain, your father or mother will be beside you during the operation, you can go home straight afterward, no one will stick a needle in your arm for a blood test before the operation, which we would have to do if you had the operation under a general anesthesia."

In conclusion, the method is fast, simple, and without complications and can be performed under local anesthesia with EMLA cream. A long-term assessment of the results will be useful to confirm absence of discomfort in the erected penis in the pubertal period.

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