

Conservative management of paraphimosis via telecommunication: an option in the COVID-19 era?

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Abstract

Paraphimosis is a urological emergency that is best managed by a manual reduction or incision of the narrowed band when manual reduction has failed. Facilitator options for this reduction are proposed, which are mostly involved in creating a hyperosmolar environment to decrease edema in the trapped prepuce. However, all series to date and the best of the authors' knowledge have reported the reduction of the paraphimosis at hospital admission, either by manual maneuver or surgical interventions. In this report, we present two paraphimosis cases that were successfully managed by parent-education, close observation via telecommunication, and locally applied steroid and antihistaminic therapy.

Keywords

Paraphimosis, telemedicine, phimosis, circumcision, prepuce, electronic healthcare.

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Introduction

Paraphimosis is one of the pediatric surgical emergencies that require a reduction of the trapped prepuce from behind of the glans penis. Classically, the reduction is made emergently at the time of hospital admission either by manual maneuver or dorsal slit under local anesthesia [1, 2]. Whether to carry out a circumcision or not is a debatable question [3].

Regardless of the chosen intervention, the aim must be to prevent the compromise in the circulation of the glans penis. However, the time of intervention is not very clear when the arterial flow and venous return are not severely blocked. In the literature, successful reduction of paraphimosis after 10 days of entrapment is reported [4]. Even if the entrapped prepuce is not reducible, an urgent approach may be reasonable with medical treatment to decrease tissue edema [5].

To the best of the author's knowledge, all previous reports agreed on the performance of all measures, including manual reduction, surgical dorsal slit, circumcision, or application of local solutions to decrease edema for enabling reduction. These should be undertaken at the time of admission and in the hospital or in the amenities available. In this report, we present two paraphimosis cases that were managed with close surveillance via telecommunication, local antihistaminic and steroid therapy, and self-reduction of the entrapped prepuce at home.

Case reports

Parents of an infant and a school-aged boy contacted the authors with complaints of an entrapped prepuce after retraction by the parents in-home, and self-retraction during micturition, respectively. The time between the entrapment and getting in touch was under half an hour for both cases. Parents were asked to provide photographs of the children and send them via a digital communication application (WhatsApp, Facebook Inc., Menlo Park, California, US). From these, an edematous preputial collar at the level of coronal sulcus was noted in both children. The color of the glans penises was

evaluated as normal despite the fact that significant edema was prevalent in both cases.

After providing analgesia (using paracetamol tailored to the weight of the children and given via oral route), the parents were informed about the situation and given a choice of close surveillance as an alternative to dorsal-slit preputioplasty, or circumcision. Local therapy was chosen using a local antihistaminic (containing mepyramin maleate 15 milligrams per 1 gram, lidocaine hydrochloride 15 milligrams per 1 gram, and dexpanthenol 50 milligrams per 1 gram) cream every 6 hours and a steroid (containing betamethasone dipropionate 0.05%) cream 2 times a day was prescribed. The prescriptions were obtained by the parents, and the children were observed via telecommunication photography and messaging. The parents were instructed to follow-up with the color of the glans penis and get in touch at any time if they encountered any change in the color or engorgement of the glans. Simultaneously, all measures were also taken to arrange the operating theatre in case any surgical interventions were needed.

After 1-day of follow-up with the infant and 2-hours of follow-up with the older child, spontaneous-reductions became possible and were ensured. The diagnosis was based on the photographs that were sent by the parents. The infant's parents were instructed not to retract prepuce and to get in touch in case any unusual behavior was encountered. The parents of the older child were instructed to get in touch if the child encountered any symptoms.

Photographs taken by the parents and electronically sent to the physicians are presented (**Fig. 1** and **Fig. 2**). Approvals from parents were obtained to use confidential pictures in scientific presentations and publications.

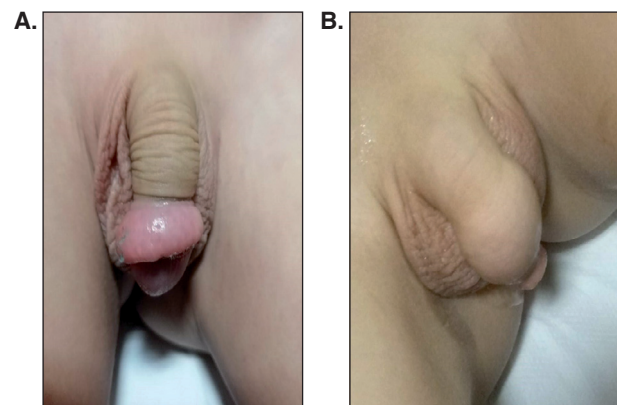


Figure 1. The image presents the entrapped (A) and resolved (B) paraphimosis in the 12-year-old child presented in our report.

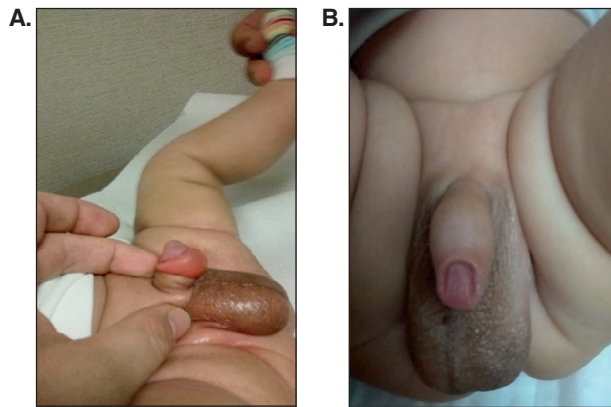


Figure 2. The image presents the entrapped (A) and resolved (B) paraphimosis in the infant presented in our report.

Discussion

Paraphimosis is a genuine emergency that is a result of entrapment of the prepuce behind the glans penis. The entrapped prepuce acts as a constrictor ring and results in a decreased venous return. Increased tissue edema further creates a vicious cycle that resembles the compartment syndrome. This increased tissue pressure merges with the more intense restrictive effect of the entrapped prepuce because of engorgement of the glans penis that leads to venous congestion and cessation of the arterial flow. The inevitable and devastating result of this cycle is necrosis of the distal compartment, which is the glans penis in this situation [6, 7].

However, the clinical course is not always that dramatic and destructive, especially with increased access to healthcare facilities in contemporary practice. By increased access to the emergency services and awareness of the parents, physicians may encounter paraphimosis cases in the early stages where both arterial and venous flow are intact. In the management of such cases, an individual can be managed by either surgical intervention or urgent manual reduction; or by more conservative management comprising local therapy to reduce the edema and let self-reduction of the prepuce [7-10].

As a rule of thumb, the first author, who was a community general surgeon in a suburb for 20 years, always favored performing an early incision of the narrowed prepuce band in case of a paraphimosis case. The second author, who worked as a family practitioner and then as a urologist in rural communities in the last 5 years, also carried out emergency dorsal slit

preputioplasty or circumcision in paraphimosis cases. However, with growing experience and availability of the close surveillance in our current tertiary healthcare center, now we changed our practice to an individualized approach. If the penile circulation seems normal and the child is amenable to pain control using oral analgesics and local antihistaminic and steroid therapy, we first admit the child, and continue with close observation. We have been using emergency interventions only when the penile circulation was apparently compromised, or the inpatient management control was not possible due to extensive pain. In this case, we also report that, because of the COVID-19 pandemic, close surveillance using telemedicine is integrated into our practice. Due to our experience, we can propose that the cases should be managed considering the clinical condition during the admission or communication, 24-hour availability of emergent intervention facilities, and compatibility of the family to the proposed approach. The risk status should be based on the probability of tissue loss, which is detrimental to both family and the minor, as well as the physician. The cases that appeared with engorged glans penis and/or intractable pain had a high probability of compromised circulation. We think that these cases should undergo emergent intervention to relieve the entrapped prepuce and observed closely. If the clinical situation does not improve, admission and consultation with a pediatrician are mandatory in this respect. We can propose that in case of low compatibility of the parents or unavailability of all-day operating theatre or anesthesia support, all cases should be regarded as having a high-risk of tissue loss and active interventions should be undertaken. However, early admitted cases with the manageable clinical course with controllable pain and amenable to local treatment with compatible parents may be considered as low-risk groups, and with the facility of an available pediatrician and anesthesia collaboration for 24-hours, and extreme situations akin to the current pandemic may direct physicians to favor surveillance and medical therapy, as we report in this paper.

When the case is grouped in the low-risk situation and decided upon surveillance, inpatient admissions are usually issueless. On the other hand, telemedicine surveillance is prone to some troubles. The two most important pitfalls of the presented approach are the risk of performing improper maneuvers by the parents and the

imprecise place of telemedicine surveillance in the contemporary legal systems. To overcome the first hazard, we endorse that the compatibility of parents should be carefully evaluated by the physicians, and forced maneuvers are discouraged. Only gentle movements should be made and preferably a spontaneous reduction should be anticipated. The telemedicine-specific problems are other hazards for the physician. Despite the telemedicine facilities that have been available for a significant time, it has made a dramatic entrance to become a routine practice in this COVID-19 era. Minimizing personal contact has become fundamental and has led to the postponing of elective surgeries to diminish the risk of COVID-19 infection. The situation has also affected primary outpatient and emergency admissions. Emergency admissions are especially hard to manage, considering the high contagious caseload in the emergency services. Combining the necessity of social isolation, the requirement of a physician's advice, and amenities of the digital world, telemedicine took its place in both elective and emergent healthcare practices. Unfortunately, the legal regulations lagged behind the "telemedicine-storm" [11, 12]. Although some problems can be overcome by the internet, for instance obtaining a secure-signed informed consent via websites, several legal infrastructure problems still persist. Transmission of highly confidential photos, such as in the presented cases, is another matter of debate. It seems not possible for all governments to act in conjunction; however, we think that international foundations should draw the outlines, and the governments should respond rapidly to the growing implementation of telemedicine into the routine practice by regulating the incumbency of physicians as well as the responsibility of the patients, caregivers, and parents.

In the presented cases, the decision to carry out surgical intervention, particularly dorsal slit preputioplasty or circumcision, was crucial; yet the decision and the timing of the intervention were also of vital importance due to the infection risk because of the pandemic. In the presented cases, we observed the children using the telecommunication facilities because of an extreme global situation due to COVID-19. Based on our experience, we can propose that similar situations can be managed via telecommunication. We regret to say, we cannot make a universal prediction of the legal results of the presented approach in case

any complication occurs, especially if the situation went unnoticed by the parents.

Moreover, there are some points we want to underline to the attention of the reader about our presented approach. The cases represent the patients of a university-affiliated private hospital located in a suburb community that is mostly formed by working-class young families. The longest transportation time to the hospital in the community is under 30 minutes, while the authors' commute times to the hospital are under 10 minutes. The follow-up and results should be interpreted considering the commute time as well as the socioeconomic status of the families. In crowded urban areas or the countries, early intervention to relax the entrapped preputial ring may be a safer approach, as we underlined the risk grouping should consider the social status and circumstances. Another important issue is the legal background of the telemedicine-based practice. The physicians' and the parents' responsibilities, as well as the legal engagements, are still not well-defined. The legal place of telemedicine is still to be defined in regular and extreme situations. However, it is globally used in the COVID-19 pandemic, which shows it is accepted and permitted at least practically [13, 14].

Conclusion

We reported two cases of paraphimosis that were managed medically, observed using digital communication, and dissolved without any problems. Whether this approach can be regarded as a globally safe primary choice is not clear; however, we can suggest it as a valid option in selected cases and extreme situations.

Declaration of interest

The Authors declare that there is no conflict of interest. Funding resources: none.

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