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Histopathological examination of the prepuce after circumcision: Is it a waste of resources?

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ABSTRACT

Background: The aim of this article is to evaluate the histopathological findings of foreskin after circumcision for medical indications and to find out if analyzing the biopsy is a waste of resources. **Material and Methods:** This retrospective analysis was carried out of the medical records and histopathological findings of 112 boys who underwent circumcision from June 2002 to June 2005. The study group consisted of 52 boys that were circumcised for medical indications, while the control group consisted of 60 boys who underwent circumcision for religious belief. **Results:** The mean (range) age of children in the study group was six (2-12) years. 36 boys had phimosis, 15 had recurrent balanoposthitis and one had paraphimosis as an indication for circumcision. Balanitis xerotica obliterans (BXO) was diagnosed in eight out of 52 biopsies (15%). In five of the eight BXO, the histopathological examination revealed focal lichenoid infiltrate which was considered as early form of BXO. There was no suspicion of BXO in the physical examination of those five patients. Chronic inflammation was reported in seven patients, while minor changes in the form of minimal inflammation and oedema were found in another 15 patients. The rest of the biopsies (22 patients) showed normal preputial pathology. The histopathological examinations of the control group revealed chronic inflammation in three patients and acute inflammation with cellular oedema in another three patients. **Conclusions:** There is a place for routine biopsy after circumcision for medical indications. The clinical examination failed to suspect 5 of the 8 cases of BXO that were diagnosed by histopathology.

Keywords: Balanitis xerotica obliterans, circumcision, pathology, phimosis

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INTRODUCTION

The foreskin might be the site of different genital dermatoses like balanitis xerotica obliterans (BXO), which is an inflammatory skin disease of unknown etiology that mainly affects the genital area and results in phimosis in male and vulvar keratosis in female.[1,2] BXO may result in meatal stenosis, urethral stricture and is associated with a high-risk human papilloma virus and can be a precursor lesion for the squamous cell carcinoma.[3] The incidence of BXO in patients with phimosis is variable in the literature and ranging from 10 to 40%.[2,4]

At birth there is a physiological phimosis in 97% of boys, which resolves spontaneously in 90% by age three years.[5] Indications for treatment of phimosis include persisting phimosis at six to seven years of age, pinpoint phimosis and balanoposthitis. First-line treatment is local application of steroids twice daily during six weeks, with instructions to retract the foreskin daily. Topical steroids are successful in 75-90% of boys with phimosis and 40% of those with clinical suspicion of BXO.[6]

Surgery is the next step in treatment when steroid treatment does not prove effective. Surgical methods range from preputioplasty, dorsal slit to circumcision to relieve foreskin tightness. Most clinics do not send the foreskin for histopathological examination, especially in countries where religious circumcision is common and therefore BXO is suggested to be overlooked in most children.[1]

In this cohort study, the aim was to investigate whether histological evaluation of the circumcised foreskin for medical indications affects clinical management.

MATERIALS AND METHODS

Retrospective review of the operative records revealed a total of 381 circumcisions performed between June

2002 and June 2005. 112 patients were included in this cohort study and were divided into two groups. A study group which consisted of 52 patients that had medical indications for circumcision and their foreskins were sent for histopathology. The control group consisted of 60 boys who underwent circumcision for religious belief and did not have any history of foreskin diseases.

Data were collected from the pathology database. Preoperative physical examination findings were reviewed from the patients' charts, focusing on indication for circumcision and if there was a clinical evidence of BXO. All circumcisions were done under general anesthesia. The procedures were performed with total removal of the foreskin in all patients. The foreskin then fixed in 10% formaldehyde solution and thereafter embedded in paraffin blocks. Sections were taken and stained with haematoxylin and eosin to be examined.

Data were incorporated into a Microsoft Excel spreadsheet (2007) and analyzed using Statistica software (2010). Fisher's exact test was used for statistical analysis and a P-value of <0.05 was considered statistically significant.

RESULTS

The mean (range) age of boys in the study group was six (2-12) years. Thirty-six of the 52 boys (69%) were found to have phimosis as an indication for circumcision, while 15 (29%) had recurrent balanoposthitis and only one (2%) had paraphimosis that was operated acutely after failure of reduction.

The histopathological findings of the patients were summarized in Table 1. A total of 8 cases of BXO (15%) were diagnosed in the study group [Figure 1]. In five of the eight BXO, the histopathological examination revealed focal lichenoid infiltrate which was considered as early form of BXO.

In three of the eight boys with BXO, the diagnosis was suspected during physical examination (phimosis and scaring) and the histopathology matched the clinical suspicion. BXO was not suspected clinically in the other five patients with early changes of BXO.

The mean (range) age of boys in the control group was comparable five (2-10) years. The histopathology revealed three cases of acute inflammation and another three cases of chronic inflammation. No BXO found in this group.

A Fisher's exact test (two tailed) analysis was used to find an association between the diagnosis and the histopathological findings in the groups. The study group had a clear association with BXO which was

Table 1: Histopathological findings of foreskin of 112 boys

	BXO typical	BXO early changes	Chronic inflammation	Acute inflammation	No abnormality
Study group (52)	3	5	7	15	22
Phimosis (36)	2	4	4	4	22
Balanoposthitis (15)	1	1	3	10	0
Paraphimosis (1)	0	0	0	1	0
Control group (60)	0	0	3	3	54
Total (112)	3	5	10	18	76

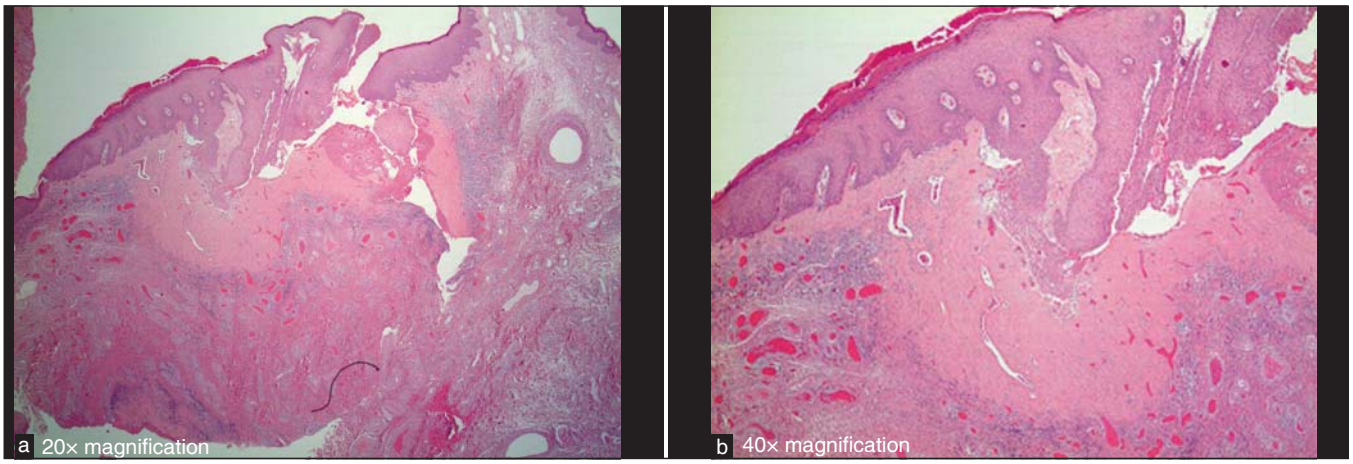


Figure 1: BXO: Chronic inflammatory infiltrate at the upper dermis with hyperkeratosis and epidermal atrophy

statistically significant (P =0.0016). Furthermore, phimosis had a strong association with BXO ($P < 0.0021$) in spite of the small sample size, while balanoposthitis did not show such an association ($P < 0.038$).

DISCUSSION

Phimosis and recurrent balanoposthitis are the most common medical indications of circumcision. This study showed that 15% of boys (8/52) who were circumcised for medical indications had a histological evidence of BXO. The small sample size of this study (52 patients) may limit the value for defining the real incidence of this disease but this incidence is in consistence with the reported incidence of 10-40% in different studies.[2,4,7] Clinical features of BXO can range from mild to florid and extensive disease. Clinically, an established case of BXO can be detected easily; however, the early features of BXO in children are subtle and could be missed. Individual observations vary, and in our study with several surgeons interpreting clinical BXO, a selection bias exists, and we admit this as a limitation.

The histopathological evaluation was able to reveal five early changes of BXO that were not suspected on physical examination. The histopathological spectrum of BXO varies according to different classification, from early atypical changes to the typical fibrosing type.[7,8] However, any change within this spectrum has to be considered significant as it represents a precursor lesion that might develop to a full process. Without histopathology of circumcised foreskin, five of eight patients (62%) with BXO would have been missed in our study.

In our department, the policy is to send the foreskin for histopathological examination after circumcision for medical indications for follow up purposes. When BXO is diagnosed after circumcision, the parents and patients are informed about the nature of the disease, complications and risk of recurrence.

CONCLUSION

There is a place for routine biopsy after circumcision for medical indications and BXO cannot be excluded on the basis of a negative physical examination.

REFERENCES

1. Bale PM, Lochhead A, Martin HC. Balanitis Xerotica Obliterans in children. Pediatr Pathol 1987;7:617-27.
2. Meuli M, Briner J, Hanimann B, Sacher P. Lichen sclerosus et atrophicus causing phimosisin boys: A prospective study with 5 year follow-up after complete circumcision. J Urol 1994;152:987-9.
3. Grossman HB. Premalignant and early carcinomas of the penis and scrotum. Urol Clin North Am 1992;19:221-6.
4. Shankar KR, Rickwood AM. The incidence of phimosis in boys. BJU Int 1999;84:101-2.
5. Oster J. The prepuce in Danish school boys. Incidence of preputial adhesion, phimosis, and smegma, Nord Med 1968;80:1318-22.
6. Kiss A, Csontai A, Pirót L, Nyirády P, Merksz M, Király L. The response of balanitis xerotica obliterans to local steroid application compared with placebo in children. J Urol 2001;165:219-20.
7. Liatsikos EN, Perimenis P, Dandinis K, Kaladelfou E, Barbalias G. Lichen sclerosus et atroficus. Findings after complete circumcision. Scand J Urol Nephrol 1997;31:453-6.
8. Clemmensen OJ, Krogh J, Petri M. The histologic spectrum of the prepuce from patients with phimosis. Am J Dermatopathol 1988;10:104-8.

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