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MANAGEMENT OUTCOMES OF ANORECTAL INJURIES IN CHILDREN

(Is Primary Colostomy, Mandatory?)

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Abstract :

Objective: The severity of anorectal injuries is difficult to estimate because the primary wound is often small and it may mask hidden rectal injury or perforation specially in children.

So, controversies continue about optimal therapeutic approach to avoid major complications (incontinence, wound infection, delayed healing).

Aim of the study:

To analyze standardized therapeutic approach for treatment of anorectal injuries in children that give favorable results, with accepted morbidity .

Methods :

Ten cases of anorectal injuries with or without perineal injuries (seven were boys and three were girls) were included in this study. The patients were classified into two groups: first group (5cases) was subjected to primary repair without pelvic colostomy, second group = (control group)(5 cases) was subjected to primary repair with pelvic colostomy. All medical records including accident mechanism, severity of the injury, surgical treatment and complications were reviewed .

Results:

Falling on pointed object was the cause of injuries in six cases, and motor car accident in four cases. The injury was limited to the anus and rectum in two cases, mild lacerations with perineal tear in two, severe anorectal injuries with pararectal soft tissue damage in three, and impalement of the rectum and vagina in three . As regard to follow up and postoperative complications, the second group had better results than the first group (wound healing , cosmetic results, anal sphincter sufficiency and fecal continence).

Conclusion:

The standard principles in the treatment of severe anorectal injuries in childhood are:- fecal diversion, debridment and closure, rectal stump irrigation, presacral drainage and broad-spectrum antibiotics.

Introduction

Anorectal injuries in childhood are rare making the experience limited. As a rule, if the rectal injury was above the pelvic floor, laparotomy is performed where repair of rectal injury, closure of the wound and left iliac colostomy must be done. But if the rectal injury was below the pelvic floor, there are two options of surgical treatment: the first one is primary wound repair without primary colostomy (**Ivatury** et al 1991 and **Renz** et al 1993) , the second option is primary wound repair with primary colostomy thus to avoid the local major complications .(**Beiler** et al 1997 and **Emmanuel** , 2000) .

Aim of the study:

To analyze cases of anorectal injuries in childhood, two different therapeutic approaches, results, and complications to reaching standardized therapeutic treatment and decreasing the major complications .

Patients and Methods :

This study was conducted on ten patients suffering from anorectal injury with or without perineal injury , they were admitted to trauma and emergency department of Sohag University Hospital from October 1998 to October 2000. There were seven boys and three girls. The age ranged from 5 to14 years. The associated intraabdominal , throacic and back injuries are excluded from the study. All cases were subjected to complete history about accident mechanism , direction of trauma and type of the injury. The anorectal injury was drained and irrigated with normal saline initially . Digital rectal examination was done in all children. Also the cases were subjected to abdominal ultra-sound, proctoscopy and colonoscopy to estimate the severity of injury and exculde bowel perforation. In girls, an additional vaginoscopy was performed in two cases where the trauma had reached to the vagina. According to data obtained by physical examination, accident mechanism and the severity of the injury, our patients were classified into two groups: the first group (5 cases) was subjected to primary repair without pelvic colostomy, the second group (control group) (5 cases) was subjected to primary repair of

the wound with pelvic colostomy. Postoperative antibiotic therapy with crystalline penicillin, cefoperazon and metronidazol was adminstrated in every case. We reviewed the postoperative complications in each group.
Follow up data were obtained in each group regarding to anal stenosis, anal sphincter sufficiency, fecal continence and cosmetic result .Follow up was done from 6 months to 2 years after repair .
The sufficiency of the anal sphincter was tested with:
1- Digital rectal examination.
2- Colostogram (normal saline) through pelvic colostomy.
Thus by asking the child to contract the external sphincter (straining) and showing continence for fluid.
3- Electro-myograghic study of function of external anal sphincter (Neuropack Four Mini Evoked Potential Measuring System) {concentric needle with diameter ½ mm, length 2 cm, or 3 cm}.

Results

Ten childern with anorectal injuries were included in this study. Seven were males and three were girls. The age ranged from 5 to 14 years (the mean age was 8.7). The anorectal injuries were due to motor car accident in four cases, falling on pointed object in four and falling on stick in two.

According to rectal and perineal examination, there were severe injuries of the rectum with pararectal soft tissue damage in three cases, (all were males), localized injuries of the rectum without soft tissue damage or perineal tear in two, laceration of the anorectum with perineal wound in two, impalement of anorectum alone in one and impalement of anorectum and vagina in two. Rectal examination was done easily in four cases where the injuries were limited to anorectum without perineal or soft tissue damage. Rectal examination was so difficult in the other cases where the extensive pararectal soft tissue damage and loss of perineal tissue due to impalement made the rectal examination not easy. Proctoscopy and colonoscopy excluded the presence of an associated colonic injury or perforation in all cases . (table 1)

No	Age	Sex	Accident mechanism	Type of the Injury
1	5	♂	Motor car accident	Laceration of rectum
2	9	♀	Falling on pointed object	Impalement of anorectum
3	8	♀	Falling on pointed object	Impalement of anorectum&vagina
4	10	♀	Falling on pointed object	Impalement of anus & vagina
5	6	♂	Motor car accident	Anorectal tear & perineal wound
6	6.5	♂	Motor car accident	Severe anorectal injury with
7	8	♂	Falling on stick	pararectal soft tissue damage
8	12	♂	Falling on stick	Anorectal injury
9	14	♂	Falling on pointed object	Anorectal injury
10	9	♂	Motor car accident	Severe anorectal injury & soft tissue damage

Table (1) showed the age , sex , accident mechanism and type of injury

Post operative Complication	First group	Second group
Anal stenosis	2	-
Wound sepsis	4	-
Incontinence	2	-
Anal sphincter insufficiency	3	2
Wound healing	Secondary	Primary

Table (2) showed postoperative complications in each group.

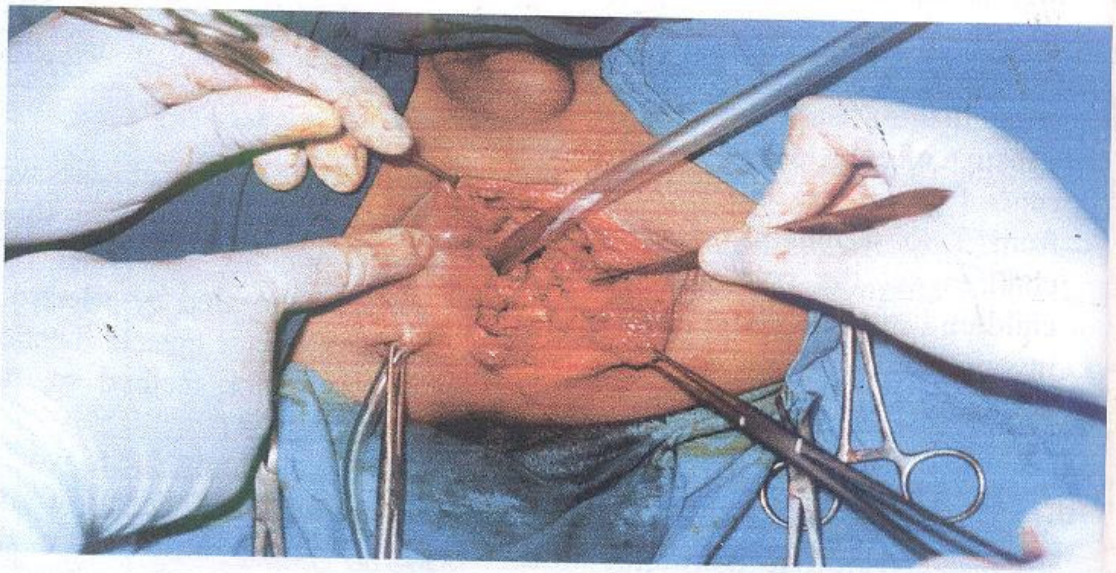
Postoperative complications : wound sepsis was recorded in four out of five cases of first group in comparison to no patient developed wound sepsis in the second group. Wound sepsis required secondary repair after one month in two cases and delayed pelvic colostomy after two weeks in two. Anal stenosis , that required regular anal dilatation, was recorded in two cases of the first group. Anal sphincter insufficiency was detected in three cases of fisrt group and two cases of second group. Two cases of

first group had suffered from stool soiling (partial fecal incontinence) while all cases of second group showed normal continence after colostomy closure .Cosmetic results were less satisfactory in the first group than the second group . (table 2)

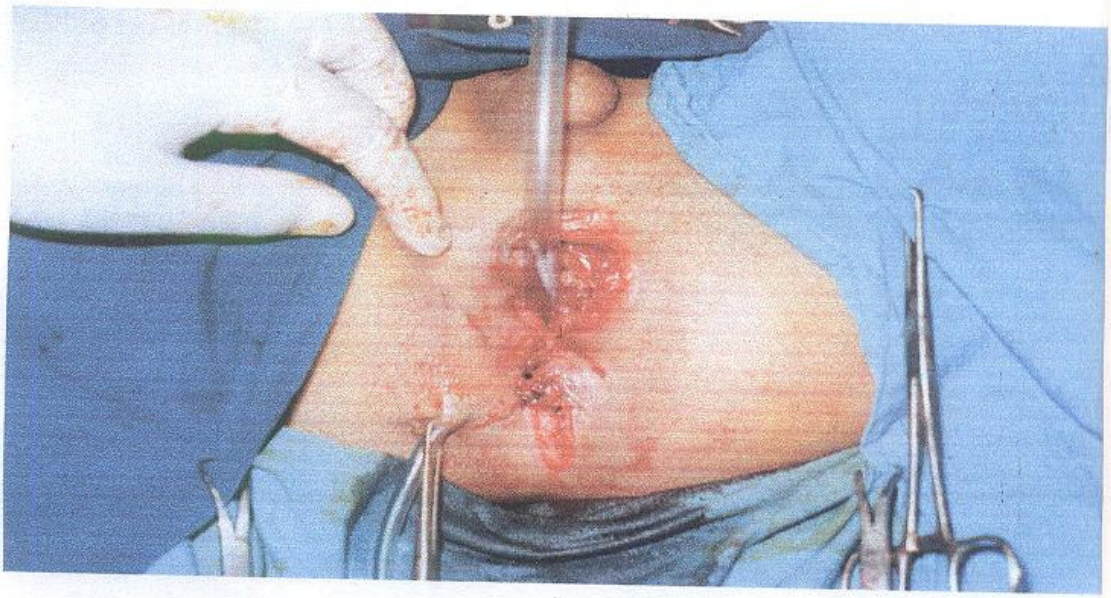
Closure of colostomy :

control group : In our cases , the range time of colostomy closure was from 3 to 6 months. Anal sphincter sufficiency was normal in three children so, the colostomy was closed after 3 months . In other two children , anal sphincter insufficiency developed as detected by electro – myograghic study and saline colostogram . The sphincter muscle function had improved gradually by training with Biofeed back method so, the colostomy was closed 6 months later Fig. (1) & Fig. (2)

first group : Two cases were subjected to delayed colostomy due to wound infection . Electro – myograghic study had showed insufficiency of anal sphincter, So, the colostomy was closed 8 months later where the sphincter muscle function improved .



Photographic picture of child 12 years old with anorectal injury



Primary repair after primary pelvic colostomy N.B: Plastic tube was introduced in the rectum during the repair.

The repair was completed. Note fixation of the tube in proper anus and insertion of suction drainage.

The same patient 3 weeks after repair. The picture shows complete healing with nice scar.

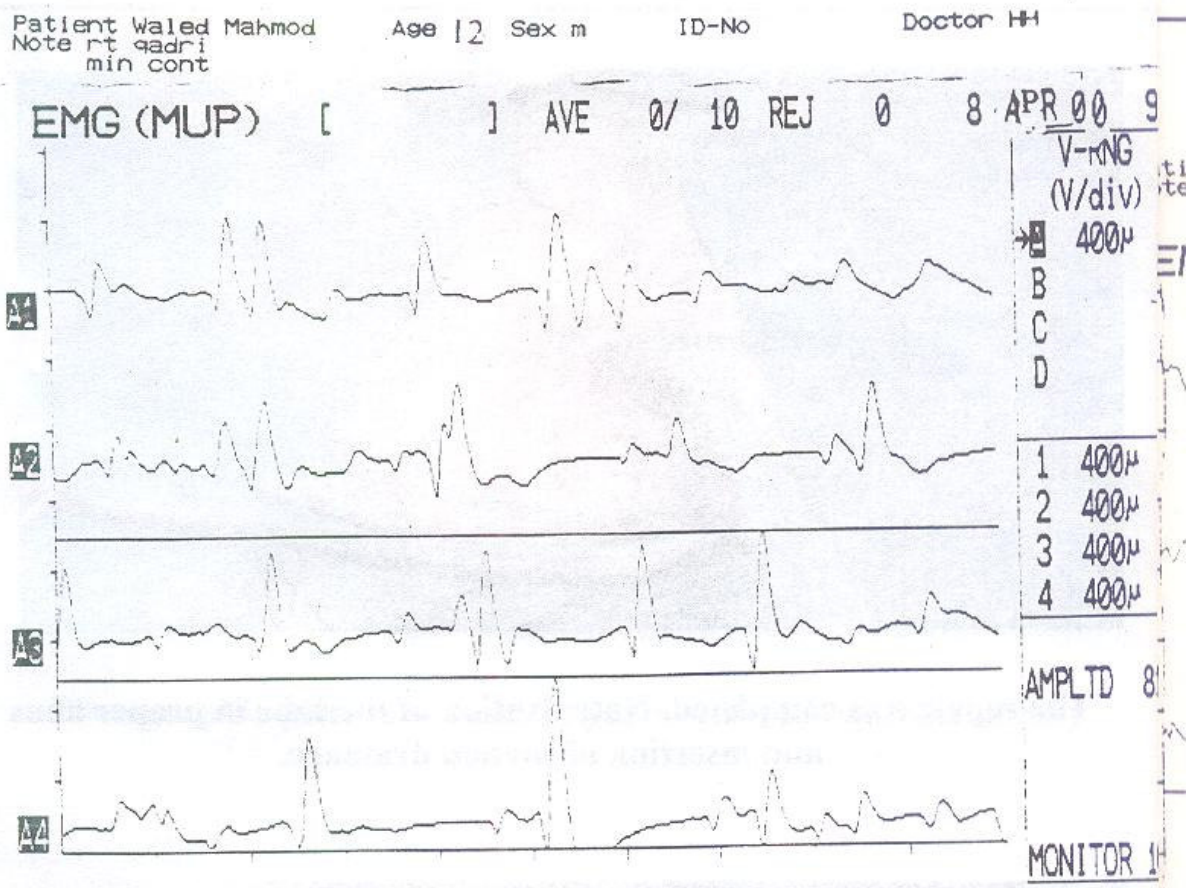


Fig (1) : Shows the electro myography of the same patient one month a surgery. Note the low voltage amplitude of the external anal sph (amp. 813 Mc V)

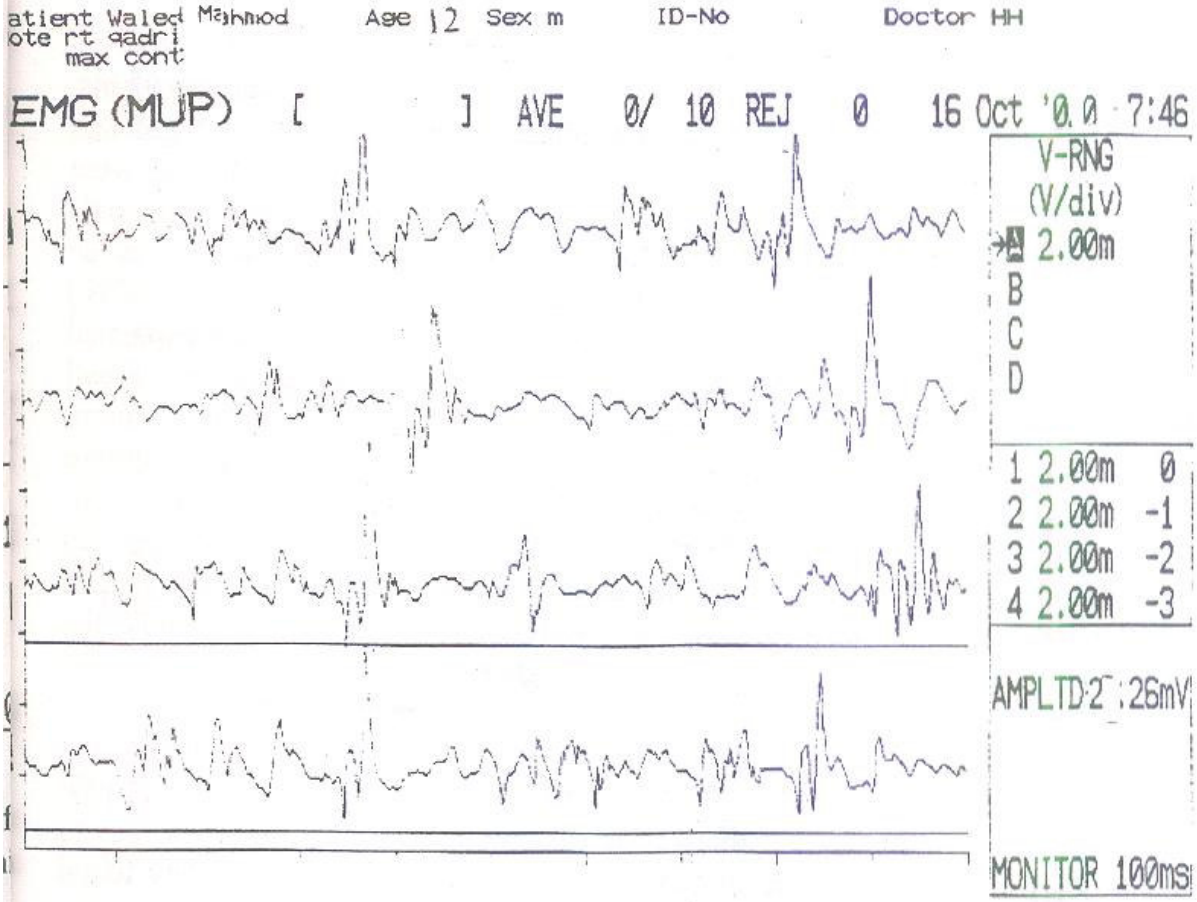


Fig (2): Shows marked improvement of the external anal sphincter, 6 months after surgery, upon biofeed back method (ampl 2.26 m V.)

Discussion :

Anorectal injuries in childhood differ from that in adults. The main causes in adults are stabs, gunshot and motor car accidents, while in childhood, the causes are impalement, falling from hight and motor car accidents. (**Yao** et al 1994). In our study, anorectal injuries were due to falling on a pointed object or stick in 6 out of 10 cases. This data agreed with results reported by **Bieler** etal (1997) who found that in ten cases, the cause of the injury was falling on a pointed object (10 out of 12) and in two cases, the cause was traffic accident. This could be explained by the prevalence of motor car and traffic accidents in our locality. Small and isolated anorectal injuries may be sutured primarily without colostomy (**Ivatury**, et al 1991and **Dartoy**, et al 1994). In more extensive anorectal wound, fecal diversion, is recommeneded (**Bostick**, etal 1993). Recent literature suggests an standard management for anorectal injuries (**Renz**, et al 1993). Primary fecal diversion is the most important step in the treatment of anorectal injuries. (**Beiler**. et al 1997). In our study, the complications were more in the first group, where anal stenosis was detected in two cases, wound infection in four, fecal incontinence in two, insufficiency of anal sphincter in three and ugly scar from delayed healing in five. This data agreed with results reported by **Bieler** et al (1997) who found that in all cases without fecal diversion, delayed colostomy had to be performed because of wound infection and anal stenosis. They found also that primary repair with primary pelvic colostomy had good results in other cases of anorectal injuries in children. In our study, follow up of cases of control group showed better results with no sepsis, no anal stenosis, and no fecal incontinence .

Conclusion:

In severe rectal injuries, with intraperitoneal rectal perforation confirmed by colonoscopy or proctoscopy, exploration is mandatory. In severe anorectal injuries with or without soft tissue damage, the fecal diversion is essential beside debridment and closure, irrigation of rectal stump, presacral wound drainage and broad spectrum antibiotics.

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الملخص العربي

اسة نتائج تشخيص و علاج إصابات المستقيم و القناة الشرجية فى الأطفال"

ل يوسف أبو الدهب و علاء السيوطى و سامى عثمان و عبد الحفيظ حسنى
قسم الجراحة ـ كلية الطب بسوهاج ـ جامعة جنوب الوادي .

جراء هذا البحث لتقييم طريقتين لعلاج حالات إصابات المستقيم و القناة جية في الأطفال مع توضيح و بيان أفضلهما في ضوء النتائج .

- ولقد أجرى هذا البحث على ١٠ أطفال مصابون بإصابات مختلفة فى المستقيم والقناة الشرجية نتيجة سقوط على جسم حاد أو أثر حادث سيارة تتراوح أعمارهم من عمر خمس سنوات حتى ١٤ عاماً ، ٧ من الذكور ، و ثلاثة من الإناث .

- وقد تم فحص كل المرضى " إكلينيكياً " و تم فحصهم بجهاز الموجات فوق الصوتية على البطن ، وقد تم فحص جميع الحالات بمنظار المستقيم والقولون للتأكد من عدم إصابة القولون داخل التجويف البريتونى ولتقييم درجة ونوع إصابة المستقيم والقناة الشرجية وإصابة الأنسجة التى تحيط به .

- وقد تم تقسيم الحالات المرضية إلى مجموعتان متساويتان : المجموعة الأولى تشمل ٥ حالات تم تصليح وخياطة الإصابة بدون إجراء عملية تحويل مجرى البراز عن طريق فتحة للقولون عن طريق البطن (تصليح أولى) أما فى المجموعة الثانية (٥ حالات) فقد تم إجراء تصليح الإصابة بالجراحة مع إجراء عملية تحويل مجرى البراز عن طريق فتحة للقولون قبل مكان الأصابه عن طريق البطن .

- وقد انتهى البحث إلى :-

الطريقة الثانية فى علاج إصابات المستقيم والقناة الشرجية أعطت نتائج افضل كثيراً من الطريقة الأولى من حيث سرعة التئام الجرح ودرجة التحكم فى البراز والاحتفاظ بوظيفة العضلة الخارجية الإرادية لفتحة الشرج مع إقلال نسبة تلوث الجرح .

القواعد الأساسية الحديثة فى علاج إصابات المستقيم والقناة الشرجية فى الأطفال تتلخص فى الآتى:

تحويل مجرى البراز إلى فتحة القولون قبل مكان الأصابه عن طريق البطن .

تنظيف مكان الإصابة مع استئصال الأنسجة الملوثة والميتة .

خياطة الجرح خياطة دقيقة .

إعطاء مضادات حيوية قوية المفعول لمدة أسبوع .

غسيل وتنظيف المستقيم يومياً .

مجلة جنوب الوادى الطبية

جامعة جنوب الوادى

كلية الطب بسوهاج

العدد (٥) رقم (٢) يوليو ٢٠٠١م