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Journal homepage: <http://tropicalhealthandmedicalresearch.com>**Acquired Ano Rectal Conditions (AARC) in Children Seen at Gezira National Center for Pediatric Surgery (GNCPS-Sudan), Epidemiology, Management, and Outcome*****Khalid Y abuaagla¹, Faisal A Nugud², Ahmed A Abdalla³**¹General Surgeon, MD SMSB, Ribat University Hospital, Khartoum, Sudan²Gezira National Center for Pediatric Surgery, Medani, Sudan³Department of Surgery, Faculty of Medicine, Gezira University, Medani, Sudan

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Abstract: The study's main objective is to determine the epidemiology, treatment, and outcome of the acquired anorectal conditions seen at the GNCPS. This study was a retrospective and prospective descriptive hospital-based study involving (131) child with Acquired anorectal conditions (AARC) who presented to GNCPS during the two-year study period. Data regarding the presentation, management, and post-operative course to look after complications and outcomes were collected. Data were collected using a formulated questionnaire and analyzed using (SPSS 17). Data considered statistically significant when P-value is less than 0.05. The study involved a total number of 131 children with AACS. The mean age of presentation is (5.78 years) with an overall 1.4:1 male to female ratio. Most of the study subjects are from rural areas, 66.4 percent. Most of them treated surgically, 83.2 percent, and 16.8 percent medically, with an overall complication rate of 24.4 percent. Conclusion Acquired Ano Rectal Conditions commonly seen at the preschooler age, mean (5.78 years). Rectal polyps and rectal prolapse were among the most frequently seen acquired anorectal conditions in children. Most of the cases treated surgically with an overall complication rate of 24.4 percent.

Keywords: acquired anorectal conditions; rectal polyp; rectal prolapse.

INTRODUCTION

Acquired anorectal conditions are a group of disorders seen frequently in pediatric surgery settings, mainly causing discomfort to the patient and the parents. It represents a broad spectrum of diseases with different pathologies, presentations, and approaches to management. Production could be considered age specified, with some of them seen primarily in infancy and early childhood, like a perianal abscess, fistula in ano, and anal fissures. Some others are seen in somewhat elder children like hemorrhoids and rectal polyps, whereas rectal trauma and sexual induced injuries can see at any age¹.

Different treatment modalities are available for these conditions, ranging from simple medical options and simple surgical procedures to highly complicated surgical procedures. However, most of them, fortunately, share the fact of being treatable over a short course of time with no tremendous morbidities, although some need to follow for a while².

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The study's main objective is to look at the epidemiology, treatment, complications, and outcomes of the acquired anorectal conditions seen at the GNCPS. Reviewing the literature, many studies have conducted toward studying anorectal conditions in pediatric populations as different diseases; many of them will be outlined and compared to our research in detail in the discussion section of this article. In this study, we try to look at them collectively as per their frequency of presentation to GNCPS.

What we try to do here is to study eight of the diseases under the umbrella of acquired anorectal disease in the pediatric population as a group and to compare between each of them. According to their frequency of presentation in the available literature, those eight diseases were chosen by their frequency of presentation in the available literature as the most frequently seen. No local study in Sudan touches the same issue in the last ten years based on screening the literature and revising the local database at the Sudan medical specialization board and Sudan national center for research.

MATERIALS AND METHODS

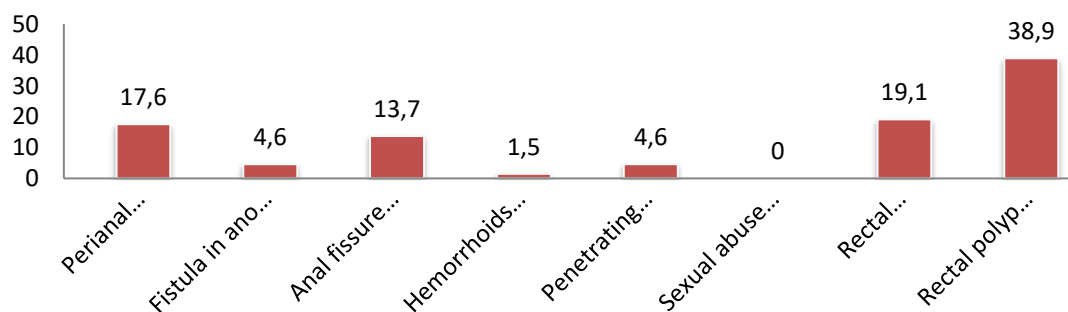
This study was a retrospective and prospective descriptive study that involved 131 children with Acquired Anorectal conditions who see at Gezira National Centre For Pediatric Surgery (Wad Madani-Sudan) over two years. The data collected with a standard questionnaire, including patient demographic data, clinical presentation, diagnosis, investigations, management interventions, whether medical or surgical, the type of each complication, and short-term outcomes. The collected data were processed using the Statistical Package for the Social Sciences (SPSS) version 17; values equal to or less than 0.05 considered statistically significant.

Ethical clearance granted by the ethical committee of the Sudan medical specialization board. The Sudan medical specialization board partially funds the research.

RESULTS AND DISCUSSION

A total of 131 children were included in this study; the mean age was 5.78 years (range five months to 14 years), males were 58.8%, and females were 41.2%, with a male to female ratio of 1.4:1. The most common frequent diagnosis was rectal polyps 38.9% (n=51) followed by rectal prolapse 19.1% (n=25) and perianal abscess 17.6% (n=23), while hemorrhoids was 1.5 % (figure 1).

Figure 1. Frequencies of Presentation of 131 Children with AACS Seen at GNCPS



Perianal abscesses and hemorrhoids were common below nine years while penetrating rectal injuries ranging between 5-13 years. Figure 2 will show the minimum and maximum age for each diagnosis.

Figure 2. Age Distribution of 131 Children with AACS Seen at GNCP

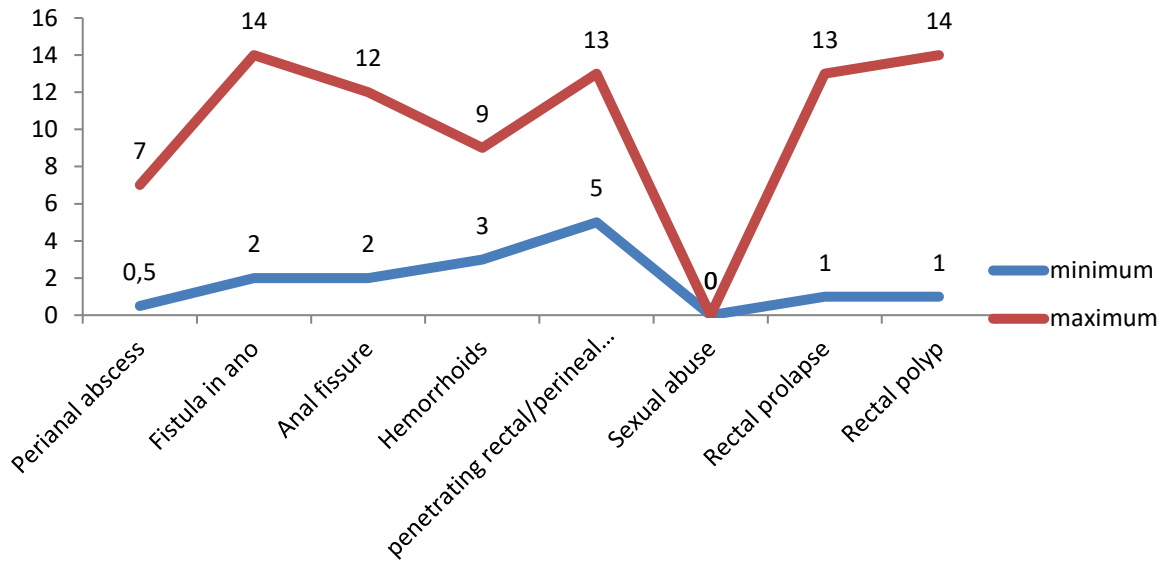
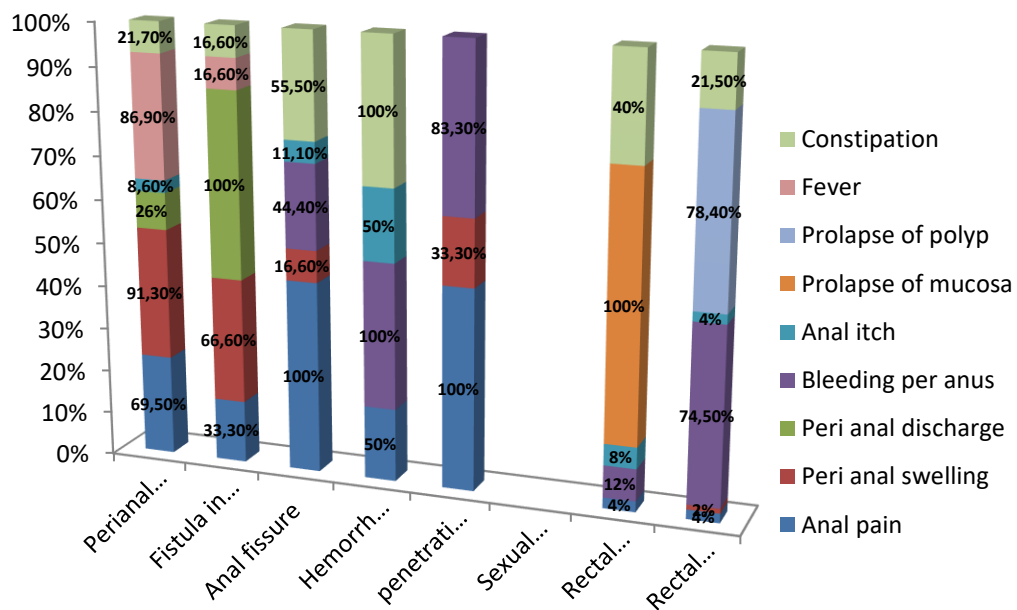


Figure 3. Frequency of the Presenting Symptoms of 131 Children with AACS Seen at GNCP



There was male predominance for fistula in ano, perianal abscess, Penetrating rectal injuries, and rectal polyps with a male-to-female ratio of 5:1, 2.8:1, 1.9:1, and 1.3:1, respectively. A slight female predominance for anal fissure with 1.2:1 balance and equal 1:1 ratio for both hemorrhoids and rectal prolapse.

In this study, 66.4% reside in rural areas and 33.6% in urban areas. There was rural predominance for rectal polyps, rectal prolapse, perianal abscess, and anal fissure with a ratio of 2.8:1, 2.5:1, 1.5:1, and 1.2:1. In contrast, fistula in ano, Hemorrhoids, and Penetrating rectal/perineal injuries have 1:1 balance. Figure 3 showing the presenting symptoms according to the diagnosis, and it is evident that each disease had several symptoms.

Overall 83.2% were treated surgically and 16.8% medically. 100% of fistula in ano, hemorrhoids, penetrating rectal injuries, and rectal polyps patients treated surgically. In comparison, 87% of the perianal abscess treated with surgery, 13% (n=3) treated medically, 44.5% of anal fissures treated surgically, and 55.5% (n=10) medically, 64% of rectal prolapse cases treated surgically, and 36% (n=9) medically.

Table 1. Showing Types of Surgical Treatment Offered for Each Diagnosis

Diagnosis	Mode of surgical treatment	Percentage %
Perianal abscess	Drainage of Abscess	100%
Fistula in Ano	Fistulectomy	100%
Hemorrhoids & Anal fissure	Dilatation	100%
Penetrating rectal/perineal injury	Primary Repair Without A	83%
	Diverting Colostomy	
	Primary Repair With A	17%
Rectal prolapse	Thiersch Procedure	100%
	Polypectomy	100%

The overall complication rate was 24.4%. 17.3% had a recurrent spot in cases of perianal abscess, and 13.1% had fistula formation. Fistulectomy is complicated by wound infection in 16.6%. Figure 4 will show the rest of the complications of the procedure.

The outcome of the perianal abscess showed 69.5% of cases cured, 8.6% had a recurrence of symptoms, 4.3% had persistence of symptoms, and 17.3% need further management. Hundred percent of hemorrhoids cured and 16.6% of fistula in ano cases needs additional management figure 5.

Figure 4. Complications of 131 Children with AACS Seen at GNCPS

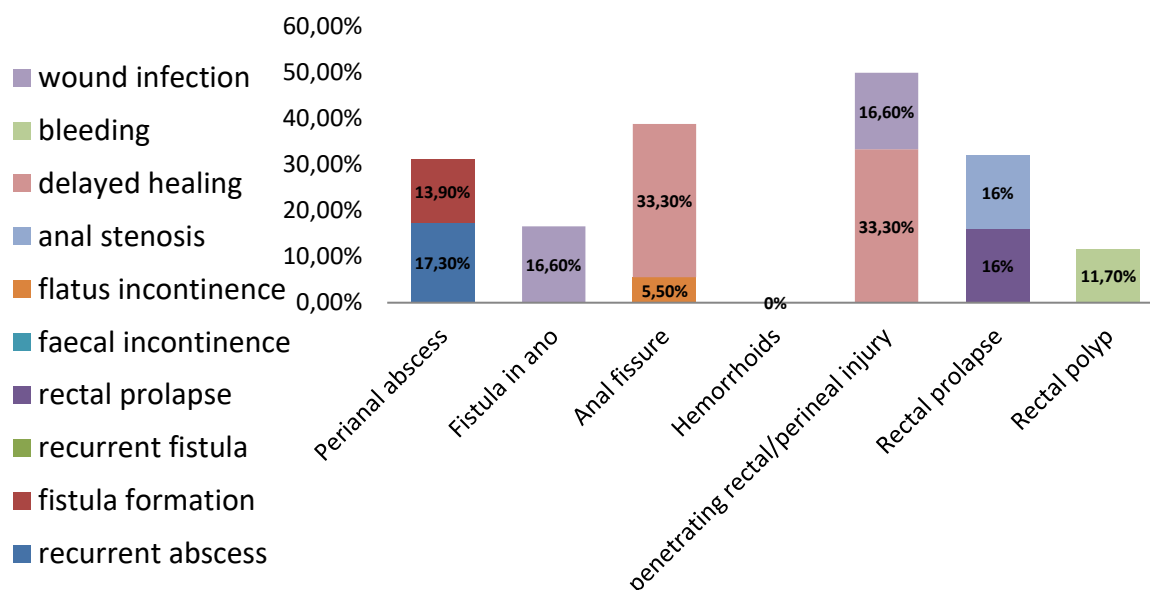
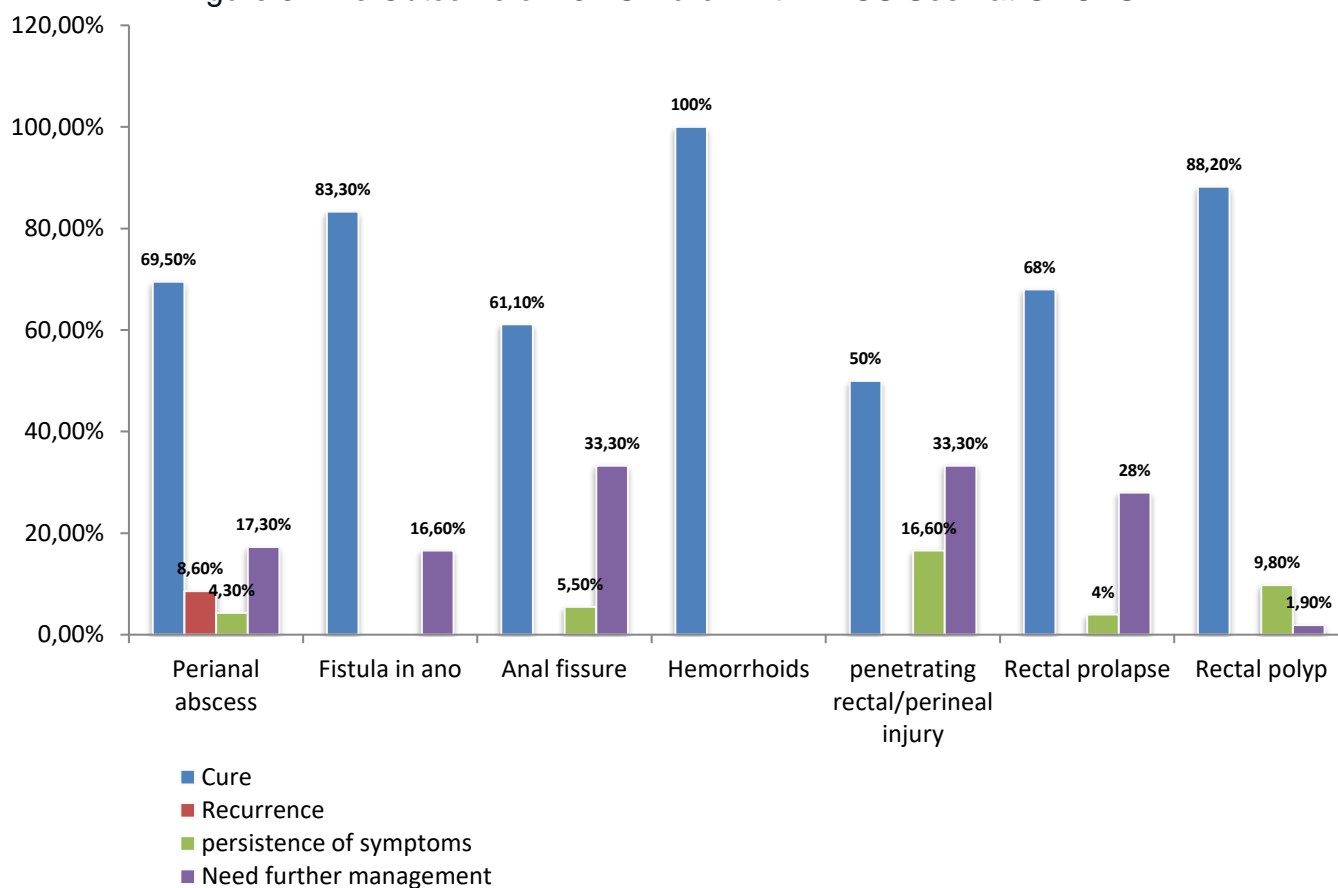


Figure 5. The Outcome of 131 Children with AACS Seen at GNCPS



Acquired anorectal conditions found to have a rural predominance in this study 66.4%, while internationally, the exact incidence and prevalence of most of these conditions is not well established².

Perianal abscess in this study showed early occurrence from late infancy to preschool age (5 months -7 years, with the mean age of 3.75 years) with few cases in the teens; this finding is well-matched with international figures that outlined in many studies^{3,4}. Male predominance with a ratio of 2.8:1 matching other reports from several studies^{2,5}.

The standard treatment of a perianal abscess is incision and drainage², 87% of these cases. In comparison, 13% were treated with only antibiotics without surgical intervention as a newly proposed way of management not widely practiced internationally⁶, surprisingly the rate of complication and recovery period is similar in both groups⁷. Christison-Lagay et al. in 2007 demonstrated that antibiotic use for perianal abscess decreased the likelihood of fistula formation. While 30.4% of the surgically treated group in this study developed complications mainly in a recurrent abscess or fistula formation, this was slightly higher than some other studies⁸.

Anal fistulae were not common in the pediatric age group representing 4.6% of all presenting cases, mostly presenting between 2-14 years of age with the mean age of 8 years. This finding compared well with what Ameh EA reported in Nigeria² and contradicted Shafer A.D et al., who stated that 96% of cases occur in infants younger than one year⁹. Shafer A.D et al.⁹ found that male predominates in fistula in ano unlike here we found the male to female ratio was 1:1, this might be due to the scarcity of the cases in this study. The patients were treated surgically by fistulectomy, a widely accepted procedure for effectiveness and respect to the time factor¹⁰. In this study, 16.6% of the cases developed complications in wound infection, and recurrent fistula is zero, reflecting the effectiveness of the surgical treatment.

Anal fissures are presented in children between 2 to 12 years with a mean age of 7 years; the prior presentation period is two years in several studies¹¹. In this study, 55.5% were treated medically with topical anesthetics, laxatives, and diet modification which is generally a promising mode of treatment according to the available literature¹², but 40% of cases show no improvement on medical options and needed further management. For all surgically treated patients treated with anal dilatation, the primary cause of attraction for the procedure is its extreme simplicity¹³. No other modality of surgical nor chemical sphincterotomy was tried; this could be because all cases are superficial fissures that do not need complex treatment. The overall complication rate was 38.3% in the form of delayed healing of the fissure wound and flatus incontinence, one of the expected complications of anal dilatation¹⁴; this is consistent with a study done in Saudi Arabia¹⁵.

In this study, hemorrhoids found in only two patients, both treated with anal dilatation, laxatives, and dietary modification advice, similar treatment strategy as Alonso-Coello P et al. used in his study¹⁶, and they pass through an uneventful post-operative course with no complications, not missing that one of the cases had a previous trial of medical treatment.

Penetrating rectal/perineal injuries occurred in children with ages ranging between 5-13 years (mean nine years), with slight male predominance¹⁷. All of the cases treated with repair with either diverting colostomy (83%) or not (17%); this selection

governs by assessment after anesthesia and proctoscopy; this is generally matching the general practice in several studies^{18,19}. Although Ameh EA, from Nigeria, proposed a successful standard treatment with diversion for all cases²⁰. Half of the subjects developed a complication in delayed healing and wound infection, and all were controlled with local measures in a short period with good results.

Rectal prolapse age of presentation and male to female ratio was similar to the study done by Fahmy MA & Ezzelarab S in Egypt²¹. Almost about 65% of rectal prolapse cases treated surgically; this is contradicting a usual practice of sclerotherapy as the first treatment option²² also opposing a study done by Sander S. et al. who stated that surgical therapy is occasionally required only²³, putting in mind in this study only 32% of the cases who underwent surgical treatment had a failed trial of conservative medical therapy. Thiersch procedure was the standard surgical procedure for 100% of the patients treated surgically in our study, although it had a 90% success rate in the literature. In our research, the success is around 70%, with resultant anal stenosis as a primary complication of the procedure.

Many researchers stated that rectal polyps are common in children with a 1-14 years age group, and this almost similar to our results^{24,25}. The standard management for all of our cases is polypectomy, a generally acceptable procedure²⁶ with minor post-operative bleeding.

Limitations of the research are: these types of patients used to treat as daycare surgeries with temporal files and no solid documentation partially due to the large number of cases seen and the lack of computerized file system, so the actual number of patients under the primary study diagnoses may be larger than the number depicted in the study.

On the other hand, long-term follow-up for some patients is impossible due to their small residence and even simple communication tools like cell phones. Many cases were dropped from the study because no follow-up is possible post-operatively.

Another limitation is the lack of some well-known management techniques due to financial or logistic problems and sometimes due to licensing issues. For example, in the anal fissure, this includes botulinum therapy, nifedipine topical preparation, and nitroglycerin topical preparations. Furthermore, fibrin glue in case of perianal fistulae Making the surgical option sometimes the only available option.

CONCLUSION

Acquired Ano Rectal Conditions commonly sees at the preschooler age (mean 5.78 years). Rectal polyps and rectal prolapse were among the most frequently seen acquired anorectal conditions in children. Other states like anal fissures, perianal abscesses, and hemorrhoids seen with less frequency and no sexual abuse were recorded during the study period. Most of the cases treated surgically with an overall complication rate of 24.4%. Standard surgical techniques were used for each disease type. Anal dilatation was the only surgical treatment for both hemorrhoids and anal fissures—a recommendation given toward the consideration of sphincterotomy as a primary option in the future. A cohort study spanning more years with better documentation of all the cases present to the hospital and a tight follow-up plan to determine the exact impact of these conditions planned in the future.

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CONFLICT OF INTERESTS

There are no competing interests among study authors or funding sources.

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