

Prospective Study on Effect of Submucosal Alcohol Injection in Cases of Rectal Prolapse in Infants and Children

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Abstract

Purpose: The purpose of the study was to study the impact of sclerosing agent in cases of rectal prolapse in infants and children.

Materials and Methods: A total of 200 cases of diagnosed rectal prolapse in infants and children attending a tertiary care of West Bengal were included in the study for the effect of submucosal injection of alcohol from a period of August 2016 to July 2018. 1.5–2 ml of alcohol was linearly injected in three sites (two laterals and one posterior).

Results: All 200 cases were followed at 3 months interval for a period of 2 years. One hundred and twenty-one patients (60.5%) had a duration of prolapse for 3–6 months. Forty-six patients (23.0%) had prolapse for more than 8 months and 33 (16.5%) patients had prolapse for more than 1 year. One hundred and ninety-one (90.5%) patients responded to a single injection. Five patients (2.5%) required the second injection. Four (2%) patients with age more than 10 years did not respond to the treatment. Twenty-five patients had fecal soiling for a period of 10–12 days. No infectious complication and no recurrence were observed.

Conclusion: 2–5 ml of ethyl alcohol (96%) is effective for the treatment of rectal prolapse. The duration of rectal prolapse had no deleterious effect on treatment; however, patients with age more than 10 years did not respond to sclerosing agent, probably due to different etiology.

Key words: Ethyl alcohol, Rectal prolapse, Sclerosing agents

INTRODUCTION

Rectal prolapse is a very agonizing condition for the child and parents depending on severity of the disease.^[1] It has two clinical variants, one being less severe responds to conservative treatment after a few weeks. The other variants are comparatively more severe persisting for several weeks or months.^[1] A good many number of treatment modalities are available, including injection of sclerosing agents. From available clinical resources, alcohol is used as a sclerosant only in few reports and its effect on prolonged rectal

prolapse and its follow-up has not been investigated in the eastern part of India.^[2] Lack of available clinical results in prolonged rectal prolapse treated with submucosal alcohol injection of ethyl alcohol attracted our attention to this study.

MATERIALS AND METHODS

A total of 200 consecutive patients in 1–12 years of age, clinically diagnosed with rectal prolapse were recruited in our study between August 2016 and July 2018. The institutional ethics committee clearance and informed content of the parents were taken. All cases of rectal prolapse were treated in our center by injection of 96% ethyl alcohol. Rectal prolapse associated with other congenital anomalies such as imperforate anus bladder exstrophy, cystic fibrosis, and neurological causes was excluded from the study. The children underwent conservative treatment for 6 weeks

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before alcohol injection. Prior pre-anesthetic checkup was done. All patients were admitted on day before the procedure. The procedure was carried after bowel preparation under general anesthesia. All patients were subjected to anorectal manometry before the procedure to exclude the specific cause. Data pertaining to age, sex, episodes of injection, complications, and recurrence were documented.

The clinical procedure was in lithotomy position under general anesthesia. The left index finger was introduced into the rectum. A spinal needle number 19 or 21 was mounted onto a syringe. The needle was inserted from the mucocutaneous junction and advanced submucosally in full length, while the index finger palpated the needle. During withdrawing the needle, 1.75–2 ml of alcohol was injected linearly in three sites (two lateral sites and one posterior site). Patients were discharged with analgesia, but with antibiotics for 5–7 days. Follow-up was carried out on days 7, 14, and 30 and then every 3 months for 1 year.

RESULTS

Of 200 patients, 144 (72%) were male and 56 (28%) were female. All patients were treated for rectal prolapse with the injection of ethyl alcohol. Two hundred cases (144 males and 56 females) had a mean age of 2.5 years (range: 1–12 years). The minimum follow-up was 12 months. Anorectal manometry and sweat chloride test were normal in all the patients. According to the duration of prolapse, the patients were divided into three groups.

In Group I, 121 cases had a duration of rectal prolapse for 3–6 months, Group II had 46 cases more than 8 months, and Group III had 33 cases of rectal prolapse, respectively [Table 1].

Table 1: Cases of rectal prolapse with different durations

Group	I	II	III
Number of cases	n=121 (60.5%)	n=46 (23%)	n=33 (16.5%)
Duration	3–6 months	More than 8 months	More than 1 year

Table 2: Cure rate of rectal prolapse with different durations of the disease

Group	I	II	III
Number of cases responding to sclerosant	121	46	33
Duration of prolapse (months)	3–6 months	More than 8 months	More than 1 year
Total number of cases, n=191 (90.5%)			
Response to single injections	115	41	30
Response to two injections	2	2	1
Total number of cases, n=5 (2.0%)			
No response	2	1	1

One hundred and ninety-one (90.5%) patients had good response to a single injection (90.5%). Four patients (2.0%) required the second injection. Four (2.0%) patients had no response after the second injection and were treated by other procedures [vide Table 2]. The age of patients who did not respond was more than 10 years, and the duration of the prolapse was 6, 8, and 12 months. Twenty-five cases (16.4%) developed fecal soilage for few days. Four patients presented with constipation for 2–3 days. No infectious complications occurred and no recurrence was observed after the post-operative follow-up at 1 year.

DISCUSSION

The sex incidence in our study was 2.5:1 toward male which is different from earlier study conducted by Corman *et al.*^[2] (1:1) and Chan *et al.*^[6] (1.8:1). The mean age of our patients was 2 years and 5 months that are similar to other reports.

Qvist *et al.*^[1] described two types of rectal prolapse according to the severity and need for surgery.

- Type I with less severe form with response to the conservative treatment within 1–8 weeks
- Type II with more severe form and may continue for several weeks or months; this required surgical intervention.

All our patients were treated for 8 weeks after the onset of their disease to ensure that the conservative treatment has failed.

Maximum patients were from suburban and rural areas and their parents believed that this will regress spontaneously. This belief was the cause of delay in seeking of medical attention in our patients. A good many number of sclerosant have been used in the treatment of rectal prolapse. Kay and Zachary^[3] and Dutta and Das^[4] used 9–15 ml of 30% saline pararectally with the success rates of 78.4% and 83.4%, after the first injection and 94% and 96.7% after the second injection.

Wyllie^[5] used 8–10 ml of 5% phenol in almond oil with the success rates of 91% after the first injection and 100%

after the second injection. Chan *et al.*^[6] used 1 ml/kg of 50% dextrose in water and other agents with the success rates of 64% after the first injection and 84% after the second injection. The failure percentage (16%) after the second injection was probably due to the involvement of secondary rectal prolapse.

We found only one report, in which alcohol was used as the sclerosing agent. Malyshev and Gulin^[7,8] used (up to 35 ml) ethyl alcohol (70%) in 353 cases with the cure rates of 96% after the first injection and 98% after the second injection. All the above-mentioned authors, except for Wyllie, had injected the agents submucosally and pararectally. However, we injected the agent only submucosally. Our success rates after the single injection were 90.5% and after the second injection were 94%.

We used 5.25 ml (1.75 ml in each site) in children <3 years and 6 ml in older children. In the above-mentioned reports, the duration of rectal prolapse was not defined. Five patients in our report (2.5%) required two injections and four patients did not respond to the second injection.

The cure rates in our patients were 90.5% after the first injection and 94% after the second injection, in spite of a prolonged duration. Qvist *et al.*^[1] concluded that a duration of more than 8 weeks requires operation. In our study, all patients responded to the sclerosing agent in spite of the prolonged rectal prolapse and no infection was noted, whereas failure was observed in four cases after 1 year. Soiling in our patients was probably due to mucosal edema and not due to damage to the sphincter because we did not inject the sclerosing agent pararectally. Constipation (observed in four patients) was probably due

to the infiltration of the sclerosing agent outside the rectal wall at the level of the sciatic nerve.

CONCLUSION

It is noted that the submucosal injection of ethyl alcohol with smaller amounts (4–6 ml) is effective in prolonged rectal prolapse. It appears that the response to this treatment was not related to the site, amount of agent, type of agents, and duration of disease. However, the secondary causes in older children despite several anatomic variants in early childhood rectal prolapse are the main reasons for the failure of alcohol injection. All the patients with rectal prolapse beyond early ages should be evaluated for the secondary causes such as chronic constipation, neuromuscular disorders, scleroderma, Hirschsprung's disease, rectal polyp, cystic fibrosis, and parasites.^[7]

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