Rectal Prolapse in Children: A Comparative Study of 5% Phenol with Almond Oil Versus 15% Hypertonic Saline for its Treatment

Muhammad Amjad Chaudhry, Anwar Khan, Parveez Khan

Author's Affiliation
1 Professor of Paediatric Surgery, The Children Hospital, SZABMU-PIMS, Islamabad
2 Consultant Pediatric Surgery, Swat
3 Medical Officer Lakki Marwat

Author's Contribution
All the authors contributed significantly to the research that resulted in the submitted manuscripts

Article Info
Received: Nov 3, 2016
Accepted: Dec 16, 2016

How to Cite this Manuscript

Funding Source: Nil
Conflict of Interest: Nil

Address of Correspondence
Anwar Khan
dranwarkhan_ntp@hotmail.com

ABSTRACT
Objectives: The objective of the study was to compare the efficacy of 5% Phenol in almond oil with 15% hypertonic saline in the treatment of rectal prolapse.

Methodology: It was a randomized control trial that was conducted at Department of Pediatric Surgery, Children Hospital, PIMS, Islamabad. Children were subjected to injection sclerotharpy with either 5% Phenol in almond oil (50 patients) or 15% hypertonic saline solution (50 patients). The children were followed for 3 months for recurrence, fecal incontinence or anal stenosis.

Results: The study included 100 children with grade I or grade II rectal prolapse. The mean age was 6.61 (±2.75) years. The study included 55% (n=55) males and 45% (n=45) females. The difference in age and gender distribution between the two groups was not significantly different, (p= 0.971) for age and (p= 0.159) for gender difference respectively. A total of 36% (n=36) patients had grade I and 64% (n=64) had grade II prolapse. The two groups were not significantly different with respect to grade of rectal prolapse (p= 0.677). The presenting features were mass coming out of anal canal in 100%, a history of bleeding per rectum in 22% (n=22) and pallor on clinical examination in 26% (n=26). In the 5% phenol group, 24% (n=12) and in hypertonic saline group 46% (n=23) had recurrence of rectal prolapse. This difference was statistically significant (p= 0.021). In the 5% phenol group 2% (n=2) and in hypertonic saline group 2% (n=1) had postoperative fecal incontinence. This difference was not statistically significant (p= 0.558). In the 5% phenol group 8% (n=4) has anal stenosis and in hypertonic saline group 2% (n=1) had anal stenosis. This difference was not statistically significant (p= 0.169).

Conclusions: 5% phenol in almond oil was more effective than 15% hypertonic saline in treatment of rectal prolapsed in terms of significantly lower recurrence rate and statistically comparable rate of complications including fecal incontinence and anal stenosis.

Key words: Rectal prolapse; Sclerotherapy; Hypertonic saline.

Introduction
Prolapse of the rectum denotes to a partial or whole extrusion or herniation of the anus through the external anal sphincter. It usually occurs between 3-5 years of age and typically first noticed by the kid’s parents. Its equal frequency is being observed during childhood in boys and girls. Parents, every so often, complain of a
dark red mass protuberant from the child’s anus and the child seems to be discomfort free. The most common cause of rectal prolapse is idiopathic and prejudicing factors are known to be malnutrition, intestinal parasites, ulcerative colitis, acute diarrhea, ehlers-danlos syndrome, pertussis, myelomeningocele and chronic constipation. Rectal prolapse is communal in children with complaints of exstrophy of bladder and myelomeningocele or in similar conditions associated with weakness, pelvic musculature or its innervation. This condition most oftenly happens with defecation or crying and decreases instinctively. If reduction does not occur, it may lead to venous edema, stasis and perhaps ulcerations. In the presence of rectal prolapse, it is not conceivable to inset finger in the space between the anus and prolapsed bowel. The prolapsed bowel may be grabbed with oiled finger and strapped back in by the parents. If rectal prolapse continues for an extensive time, the bowel becomes edematous and firm, steady pressure for several minutes may be needed to decrease the distension to let reduction. Digital rectal inspections, after reduction, is compulsory to confirm whether reduction is absolutely complete or not. In situation where prolapse instantly reappears, reduction is again mandatory and in that case, rumps strapped together with a single band of gum tape for numerous hours. Mostly children having rectal prolapse do not necessitate any precise form of handling; however, it is indispensable to avert unnecessary draining. Dietary modification of constipation, proper toilet training, oral management of stool softeners and having the child expel with feet off the floor may be supportive. Lengthy sittings on the lavatory should be addressed. When rectal prolapse is seen, parents are advised to reduce protuberance by applying pressure with warm compresses and softly shove it into the rectum. If edema of the rectum continues, firm steady pressure of the fingertips for several minutes may be essential to decrease bulge. Surgical procedures may be required for recurrent rectal prolapse as conservative measures. If traditional treatments fail and the prolapse perseveres, sub-mucosal injection of sclerosant into the rectal ampulla may be applied. Children with recurrence after injection of sclerosant necessitate surgical treatment. Unfortunately; most of the surgical literature regarding rectal prolapse is available on adults. A more recent Cochrane review of the surgical management of rectal prolapse in adults concluded that: “Laparoscopic rectopexy was associated with fewer post-operative complications and shorter hospital stay than open rectopexy”. The current study was planned to compare the efficacy of 5% Phenol in almond oil with 15% Hypertonic saline in the treatment of rectal prolapse in children at Department of Pediatric Surgery, Children Hospital, PIMS, Islamabad.

**Methodology**

This experimental randomized control trial was conducted at Department of Pediatric Surgery, Children Hospital, Pakistan Institute of Medical Sciences, Islamabad. Study was conducted over 1 year from June 2011 to June 2012. A total of 100 children with rectal prolapse were included in the study. Non probability prospective sampling was used for the study. **Inclusion criteria:** Children of either gender below 12 years of age diagnosed to have rectal prolapse of Grade I and II was the inclusion criteria. **Exclusion criteria:** Rectal prolapse due to causes like ulcerative colitis and crohns disease, Previous history of surgery on pelvic floor, Neurological diseases like cauda equine syndrome, neural tube defects and sacrococcygeal teratoma, Hirschspring disease, congential megacolon, rectal polyps were the exclusion criteria. **Data Collection Procedure:** Entire work was done with the permission from hospital Ethical Committee. Patient was explained about the whole procedure and well-versed written consent was taken. Patients were admitted through emergency and outdoor departments. Brief history and clinical examination with investigations was recorded on a Proforma. Diagnosis was established on clinical grounds. A total of 100 patients were included in the study and were allocated to either group A or B using the lottery method. They were divided into two groups; Group A had 50 patients receiving injection sclerotherapy with 5% phenol in almond oil. Group B had 50 patients receiving injection sclerotherapy with 15% Hypertonic saline. Patients were admitted 24 hours before the procedure. Bowel was evacuated with phosphate enema a night prior to the procedure. The procedure was done under general anaesthesia. The patient was placed in the lithotomy or left lateral position under general anesthesia. A 20-gauge spinal needle was introduced through the anal mucosa via a proctoscope or was externally introduced 2-3 cm from the anal margin, with a guiding finger in the anal canal, to a point several centimeters above the dentate line. The sclerosant was circumferentially injected into the
submucosal and perirectal space as the needle was withdrawn. To prevent, necrosis, bleeding, or stenosis, care was taken to avoid injecting the sclerosing agent into the mucosa. Patients undergoing sclerosant injection were be discharged the same day with simple analgesics and stool softeners.

All patients were followed on week 1, month 1, month 2 and month 3 for recurrence, incontinence or anal stenosis. The data was entered into the proforma attached as Annex I.

**Data analysis procedure:** Data was converted into variables which were analyzed using Statistical Package for Social Sciences (SPSS) version 17. Mean and standard deviation was presented for numerical values. Frequency and percentages were presented for categorical data. The frequency of recurrence of rectal prolapse between children undergoing sub-mucosal 5% phenol in almond oil injection and 15% hypertonic saline was compared using the chi square test. A P value less than 0.05 was considered to be significant.

**Results**

Our study encompassed 100 children with grade I or grade II rectal prolapse. The age ranged from 02 to 12 years with a mean age of 6.61±2.75 years (Figure 1). The median and mode ages were 6 and 3 years respectively. The mean age of children in the phenol group was 6.62±2.64 years and the mean age of children in hypertonic saline group was 6.60±2.89 years respectively. This difference was not statistically significant; \( p=0.971 \).

![Figure 1. Age distribution of study group](image)

The study included 55 (55%) males and 45 (45%) females. In phenol group 24 (24%) were males and 26 (26%) were females. In the hypertonic saline group 31 (31%) were males and 19 (19%) were females (Table I). This difference was not statistically significant; \( p=0.159 \).

<table>
<thead>
<tr>
<th>Group</th>
<th>Gender</th>
<th>5% Phenol</th>
<th>15% Hypertonic saline</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>24</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>26</td>
<td>19</td>
<td>0.159</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A total of 36 (36%) patients had grade I and 64 (64%) had grade II prolapse. In the phenol group 17 (17%) had grade I and 33 (33%) had grade II prolapse (Table II). In the phenol group 19 (19%) had grade I and 31 (31%) had grade II prolapse. This difference was not statistically significant; \( p=0.677 \).

<table>
<thead>
<tr>
<th>Grade</th>
<th>5% Phenol</th>
<th>15% Hypertonic saline</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>Grade I</td>
<td>Grade II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>31</td>
<td>0.677</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>64</td>
<td></td>
</tr>
</tbody>
</table>

All (100%) had history of mass coming out of anal canal. 22 (22%) patients presented with a history of bleeding per rectum. 26 (26%) patients presented with pallor on clinical examination. In the 5% phenol group, 24% (n=12) and in hypertonic saline group 46% (n=23) had recurrence of rectal prolapse (Figure 2).
This difference was statistically significant (p= 0.021). In the 5% phenol group 2% (n=2) and in hypertonic saline group 2% (n=1) had postoperative fecal incontinence. This difference was not statistically significant (p= 0.558). In the 5% phenol group 8% (n=4) has anal stenosis and in hypertonic saline group 2% (n=1) had anal stenosis. This difference was not statistically significant (p= 0.169).

**Discussion**

In children younger than 5 years, rectal prolapse is common. Impulsive resolution in children is communal and medical controlling with stool softening agents and dodging of prolonged straining are enough treatment for most of the remnants. Indications for operation are imprecise but include longstanding symptoms, rectal pain/bleeding/ulceration, and prolapse that require frequent manual reductions or is difficult to reduce. Prejudicing conditions and elder stage may effect an earlier development to operative repair. Certain researchers endorse a more bellicose method in children older than 4 years, because they may have a higher failure rate when non-operatively managed. 14,15

In Turkey, Abes and Sarihan used 15% saline solution as an injected sclerosing agent in 16 children with rectal prolapse16; they found that prolapse ceased in 93.7% of the children after the first injection, only 1 patient required a second injection, and no complications occurred. These results were different from the results of our study since recurrence was seen in 46% of 15% hypertonic saline patients.

In UK, Shah et al17 carried out a study on 24 patients with persistent rectal prolapse. Children below the age of 5 years, group 1 (n=17), were successfully managed by submucous hypertonic saline injections and 83% (14/17) were cured. The results also were different from results of our study.

In Egypt, Fahmy and Ezzelarab 18 treated 130 children with rectal prolapse aged 6 months to 12 years who underwent injection with 98% ethyl alcohol (group 1), phenol in almond oil 5% (group 2), or dextranomer and hyaluronic acid injectable gel (Deflux; group 3); they found that Phenol in almond oil 5% had a high complication rate. In phenol group, 18% had abscesses and mucosal sloughing, and (1.53%) developed perianal fistula. No patients had mucosal ulceration or abscess formation, and none had recurrence on long-term follow-up.

In Canada, Chan et al 19 examined the efficacy of injection sclerotherapy as treatment for persistent rectal prolapsed in 28 patients and sclerosing agent included D50W in 21 patients and Phenol 5% in six patients, and 25% saline in one patient. 21 were cured; sixteen required one injection, three required two injections, and two required three injections (64% cure rate after one injection, 84% cure rate after three injections). There were 4 failures.

In Japan, Sasaki et al 20 reported the results of injection sclerotherapy in children using phenol in almond oil. Out of nine children with rectal prolapse all were cured after one to three injections without any complications. Again the results were quite different from our results since we had 65% cure rate.

At Liaquat University of Medical & Health Sciences, Jamshoro, Hyderabad 21 22 children were subjected to injection sclerotherapy using 5% phenol in almond oil and the cure rate after first injection was 72.73% and after 2nd and 3rd injection was 86.36%. Only 03 patients out of these 22 (13.64%) were ultimately recommended surgery.

At Lady Reading Hospital (LRH), Peshawar, Khan et al 22 evaluated the role of injection sclerotherapy with phenol in almond oil in the treatment of rectal prolapse in children and found that out of a total of 152 children, those treated with single injection were 135 (88.8%); those who needed two injections were 9 (5.9%) and 8 (5.2%) needed three injections with almost nil complications.

In Karachi, Batool et al 23 found that after injection sclerotherapy with phenol in almond oil, prolapse disappeared in all patients and no complication related to injection occurred.

At Peoples Medical College Hospital, Nawabshah, Soomro et al 24 studied injection sclerotherapy with 5% phenol in almond oil in the treatment of rectal prolapse in 32 children. No procedure related complication was seen and no recurrence occurred at one month follow up.

The reason for a lower success rate and higher recurrence rate in our study could be that we used only a single injection whereas in previous studies injection sclerotherapy was repeated in a second and then in a third injection. Bowel training is an important part of management. Squatting position at defecation is not recommended. Similarly timely evacuation of bowel (defecation habit) is also stressed upon. This behavioral modification couple with high fibre diet prevent rectal prolapse. This counseling was not done in our patients which might be the reason of this higher recurrence rate.
Conclusion

5% phenol in almond oil is more effective than 15% hypertonic saline in treatment of rectal prolapse in terms of significantly lower recurrence rate and statistically comparable rate of complications including fecal incontinence and anal stenosis. Injection sclerotherapy should be offered to all patients not improving with conservative treatment before referring them for surgery. 5% phenol in almond oil seems to be the more effective option.

References