



## ROLE OF TABLE SALT IN MANAGEMENT OF UMBILICAL GRANULOMA: AN INTERVENTIONAL STUDY.

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## INTRODUCTION

Umbilical granuloma is a common benign anomaly of umbilicus in newborns.<sup>1,2,3</sup> It is an excessive growth of granulation tissue during healing process of the umbilicus.<sup>3,4</sup> Umbilical granuloma are usually observed by parents as a small red and moist fleshy lump that is located in the umbilicus with continuous moisture at umbilicus until the cord dries and falls down.<sup>3,5</sup> This normal tissue of granulation is due to resolving umbilical stump of a newborn resolves within two to three weeks of birth with appropriate hygienic care.<sup>5</sup> Umbilical granulomas are painless due to lack of nerves.<sup>4</sup> However, the presence of lump in place of the umbilical cord that has fallen off may lead to psychological distress in the parents and may indicate cure.<sup>6</sup>

Different treatment modalities for umbilical granuloma are treatment with silver nitrate or copper sulphate, Electric cauterization,

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**ABSTRACT...** Umbilical granuloma is a benign growth composed of granulation tissue at the base of umbilicus presents as red, soft, moist and friable lump at umbilicus. **Objectives:** Objective of our study is to evaluate the therapeutic role of table salt in umbilical granuloma in infants. **Study Design:** A Prospective Interventional Study. **Setting:** Outpatient Department of Pediatric Surgery, Bacha Khan Medical Complex (BKMC) Swabi. **Period:** Seventeen months (from 1<sup>st</sup> October 2017 to 31<sup>st</sup> March 2019). **Material & Methods:** First 66 consecutive fit infant were included in the study. Parents of infants were taught to apply a pinch of table salt on umbilical granuloma after cleaning with warm water. A dressing was applied over umbilicus for 30 minutes for the table salt to remain on granuloma and granuloma washed again with warm water. Parents' learning was assured and they were advised to repeat the procedure twice a day for consecutive five days. Parents were counseled to bring their infants for follow up at end of week and then after completion of three weeks. **Result:** Out of 66 infants, 30 were male and 36 were female. We observed complete resolution of granuloma in all infants except one that turned out umbilical polyp and was excised under general anesthesia. **Conclusion:** Treatment of umbilical granuloma with table salt is safe, simple and very economical.

**Key words:** Infant, Management, Table Salt, Umbilical Granuloma, Umbilical Polyp.

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Cryocauterization, excision removal, and ligation.<sup>3,7</sup> Treatment with 75% silver nitrate is the commonly used technique but is not completely safe, and when applied these chemicals may result in tissue trauma in the surroundings of umbilicus.<sup>8</sup>

Table salt was first used as an alternative where silver nitrate or healthcare professional was unavailable. In 1972, Schmitt informed about the contracting effect of common salt on umbilical granuloma. Another study conducted by Saleh Abdullah demonstrated complete resolution of granuloma with table salt i.e., 100% curative.<sup>3</sup>

This study is performed to determine the therapeutic efficacy of table salt on umbilical granuloma in local population as it is easily more available and safer than silver nitrate.

**MATERIAL & METHODS**

This interventional prospective research was performed in the OPD (outpatient department) of pediatric surgery department of BKMC Swabi from 1<sup>st</sup> October 2017 to 31<sup>st</sup> March 2019. All infants from three to twenty weeks of age who were diagnosed to have umbilical granuloma were included. Infants with infected umbilical granuloma and with other co morbidities were excluded. Well informed consent was taken from the parents of participants. Permission to conduct this study was obtained from the institution review board before collecting data.

First 66 consecutive fit infants entered in this research. The whole procedure was explained to the parents of infants. Mothers of the infants were taught to put a small amount of table salt on umbilical granuloma after cleaning with warm water. A dressing was applied over umbilicus for 30 minutes for the table salt to remain on granuloma and granuloma washed again with warm water. Parents’ learning was assured and they were advised to repeat the procedure two times daily for successive five days. Moreover, they were counseled to come for follow up at the end of week one and then at end of week three.

All participants were reassessed after seven days and then after 21 days to assess the outcomes of table salt on umbilical granuloma. The outcomes were categorized as (a) magnificent (absolute resolution, dry and epithelized scar and (b) failure (persistence of umbilical granuloma, and umbilical wetting). All these information were recorded on a structured proforma and were analyzed through SPSS version 25.

**RESULTS**

Out of total 66 infants, 30 were male and 36 were female. Most of them were in age range of nine to twelve months as shown in Table-I. Sixty-five (98.4%) infants showed complete resolution of granuloma at the end of week three with 5 days application of table salt while one (1.6%) infant did not respond. His parents were counseled to excise it under general anesthesia. After completing respective protocol, the granuloma like lump was excised and sent for histopathology.

Histopathology report showed that granuloma like lump was actually umbilical polyp with well differentiated epithelium that does not respond to table salt.

Granuloma of one of the infants can be seen in Figure-1 which has completely resolved after application of table salt as shown in Figure-2.

Age Group	No. of Infants	Percentage
3-8	9	14%
9-12	35	53%
12-16	16	24%
16-20	6	9%

Table-I. Age distribution (n=66)



Figure-1. Pretreatment umbilical granuloma



Figure-2. After 5 days treatment

## DISCUSSION

Umbilical discharge in infants is one of the most common presentations in pediatrics outpatient clinic.<sup>3</sup> different reasons for the umbilicus discharge in infancy are patent urachus, patent omphalo-mesenteric duct, infection, polyp and granuloma.<sup>9</sup> The most common cause of the discharge is granuloma. Natural resolution of the granuloma has not been reported in literature.<sup>10</sup> Therefore various treatment modalities have been tried for cure of umbilical granuloma and all are therapeutic and each has its own advantages and disadvantages.<sup>11</sup> treatment with silver nitrate and copper sulphate may result in peri-umbilical skin burn. Moreover it is not easily available everywhere. Electro -cautery and surgical excision require complete anesthesia.<sup>9,12</sup>

Treatment with table salt has shown good results and is complication free, easily available, and virtually free that can be applied by mother. We also utilized table salt in our study.

Researchers did not find any difference in occurrence of umbilical granuloma in both genders.<sup>12</sup> Similar results were also reflected in our study. Although Tripathi RK et al<sup>13</sup> reported 96% cure rate in their study which is almost near to our results but strangely number of male infants were almost double then female infants in their study.

We achieved complete resolution of the granuloma which is also in accordance with the results of Zahid hussain et al. They reported 91.7% resolution with application of table salt. Saleh<sup>3</sup> has studied therapeutic effect of table salt on 50 infants with 100% resolution of the granuloma. We also achieved complete resolution in all of 66 infants.

The therapeutic effects of salt in management of umbilical granuloma are considered due to its drying effects on tissues. The excessive amount of sodium ion dehydrates tissues which lead to falloff of granulation tissue. However this does not cause damage to surrounding normal squamous epithelial when applied for a short period of time.<sup>14</sup>

Although our results are encouraging but our sample size was small. Further multicentre studies are required to validate this cost effective treatment for a very common distressing condition of umbilical granuloma.

## CONCLUSION

Table salt has shown excellent cure rates in Umbilical granuloma. Its application to the umbilical granuloma is distinctly successful, easy, cost effective and safe.

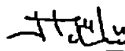
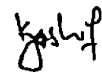
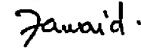
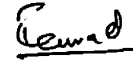
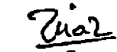
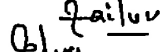

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