

Appendix 1. Characteristics of included studies

| Authors/centre/ year(s) | Sample size and design | Study population | Intervention and comparator | Outcomes |
|--|---|--|---|--|
| Daniels et al ⁶ / England/2005 | n = 40 Quasi- randomised controlled trial (RCT) | Unclear | Group 1: Alcohol wipes at each nappy change Group 2: Silver nitrate cauterisation | Two-thirds of granulomas in the alcohol group resolved over a three-week period. One-third of patients required silver nitrate cauterisation. |
| Sheth and Malpani ⁵ / India/1977-87 | n = 75 Quasi-RCT | Infants aged 20-60 days with a granuloma of 7-15 mm in size | Group 1 (n = 25): Cryosurgery with nitrous oxide Group 2 (n = 25): Electrocautery with a 50-W output Group 3 (n = 25): Chemical cautery using silver nitrate | Follow up performed at one week, four weeks and 24 weeks to ascertain the need for repeat applications of the initial treatment. After one week, all infants in the cryocautery group, 84% in the electrocautery group and 80% in the silver nitrate group had resolution of the umbilical granuloma. Multiple application was needed in four of 25 infants in the electrocautery group and five of 25 infants in the silver nitrate group. |
| Ogawa et al ⁸ / Japan/2013-16 | n = 207 Non-inferiority trial | Neonates with umbilical granuloma | Group 1 (n = 104): Silver nitrate once per week, continued until healing is achieved Group 2 (n = 103): Topical betamethasone valerate 0.05% twice daily until response | Follow up performed at one week, two weeks and three weeks to look for resolution. Treatment failure was defined as the need to add second treatment after two weeks of initial treatment. Of infants in silver nitrate group, 87.5% had resolution of umbilical granuloma, compared with 82% of infants in the topical steroid group. The treatment failure rate was 12.5% in the silver nitrate group and 18% in the steroid group. After two weeks, four infants in the silver nitrate group and three infants in steroid group experienced treatment failure. In the silver nitrate group, two infants were changed to steroids, two infants underwent ligation. In the steroid group, three infants changed to silver nitrate, of which one underwent ligation. Non-inferiority criterion was not met between the two groups. |
| Brødsgaard et al ⁷ / Denmark/2012-14 | n = 109 RCT | Term infants with a postnatal age of >3 weeks, without local infection at the umbilicus and no prior treatment of umbilical granuloma | Group 1 (n = 30): Silver nitrate twice per week until improvement Group 2 (n = 30): Clobetasol propionate 0.05% twice daily until improvement or 30 days, whichever occurs first Group 3 (n = 34): Ethanol wipes 82% with each nappy change | Follow up was performed twice weekly until complete resolution, with photographs taken at each visit. Healing was achieved in mean (SD) 12.9 (7.7) days in silver nitrate group, 17.4 (8.7) days in the clobetasol group, and 27 (11) days in the ethanol groups. A total of 29 of 30 infants in the silver nitrate group, 27 of 30 infants in the clobetasol group and 18 of 34 infants in the ethanol group were successfully treated ($P < 0.0001$). A total of three infants from the clobetasol group and 11 from the ethanol group had to be administered silver nitrate after 30 days. |

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| Farhat and Mohammadzadeh ¹¹ /Iran/2004-06 | n = 40 Clinical trial | Unclear | Group 1 (n = 20): Application of common salt left in situ for 24 hours, followed by wash with cold boiled water Control group (n = 20): Application of common salt left in situ for two hours, followed by wash with cold boiled water | Follow up every 24 hours until complete healing. In both the study group and the control group, salt application was continued daily until complete recovery. Successful resolution occurred in both groups, with no recurrences or complications. |
| Golshan et al ⁹ /Iran/2015 | n = 60 Single-blind RCT | Infants with healthy umbilical granuloma; no infection evident | Group 1: Salt powder for 30 minutes two times per day for five days Control group: No active treatment | Regular examination for healing was carried out. However, the frequency of examination was unclear. One hundred per cent in the salt group and 16.7% in the control group were successfully treated. |
| Kavthekar et al ¹⁰ /India/2017-19 | n = 60 Quasi-RCT | Infants aged 3-12 weeks with clinically diagnosed umbilical granuloma | Group A: Pinch of salt over the umbilical granuloma twice daily, followed by adhesive tape application for 10 minutes for seven days in total Group B: Pinch of salt over the umbilical granuloma twice daily, followed by adhesive tape application for 30 minutes for seven days in total | Follow up after one week and three weeks of salt application; 28 of 30 (93.33%) from group A compared with 29 of 30 (96.66%) from group B showed complete resolution. |
| Faranoush et al ¹² /Iran/2006 | n = 105 Clinical trial | Unclear | Group 1: Common salt for three days (once every 12 hours) Group 2: Treated with 70% alcohol twice daily (0.5 mL each time) Group 3: Control group. Umbilicus was washed with pure water twice daily (0.5 mL each time) | Regular follow up until two months. Recovery rates after three days were 100% (common salt), 34.3% (alcohol) and 14.3% (pure water) ($P = 0.0000$). However, in 25.7% of infants treated with alcohol and 60% of infants treated with pure water, who were successfully treated before three days, the umbilical granuloma recurred after an average of 8.3 days and four days, respectively. There was no recurrence among infants treated with common salt. |
| Badebarin et al ¹³ /Iran/2015-16 | n = 50 Clinical trial | Infants aged between three weeks and four months | Group 1 (n = 25): Treated with local application of sterile salt. After approximately 30 minutes, the umbilical granuloma was washed with warm water. This procedure was repeated 12 hours later for five days Group 2 (n = 25): Surgical excision under general anaesthesia using electrocautery | Patients in both groups were followed up after five days initially and then at three months. In the salt group, nine (36%) patients showed a relative improvement in five days after treatment. These patients were treated with common salt for another five days. At 10 days, all patients recovered completely. On day five of the treatment with salt, one patient (4%) did not show any improvement and was included in the surgical group; complete recovery was achieved in all patients after surgery. |

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| Annapurna and Ramu ¹⁴ / India/2007-14 | n = 84 Quasi-RCT | Infants aged between 2 weeks and 4 months | Group 1 (n = 44): Local application of copper sulphate by the clinician once only Group 2 (n = 40): Common salt applied twice daily, washed 30 minutes later and repeated for three days | Forty-two of 44 patients in the copper sulphate group and 32 of 40 patients in salt group showed complete resolution of umbilical granuloma. At the end of one week, 4.5% patients in the copper sulphate group and 45% patients in the common salt group required second application. |
| Fiaz et al ¹⁵ / Pakistan/2017 | n = 60 Clinical trial | Infants aged between 2 weeks and 4 months | Group A (n = 30): Copper sulphate applied once over the umbilical granuloma for 10 minutes Group B (n = 30): Common salt over the umbilical granuloma for 30 minutes twice daily for three days | Follow up at one-week, three-week and one-month intervals to record the outcome. Excellent response with complete epithelialisation was 100% vs 53.33% ($P < 0.001$) with copper sulphate vs common salt. |