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Umbilical granuloma: a new approach to an old problem

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Abstract Umbilical granuloma (UG) is the most common umbilical abnormality in neonates, causing inflammation and drainage. Most fail to epithelialize and persist for more than 2 months. The common treatment is application of a 75% silver nitrate stick, usually repeated two to three times over a number of clinic visits. Burns have been reported following spillage onto the surrounding tissues. During a 10-year period, 302 neonates were treated for UG using excision and application of absorbable hemostatic materials. Healing was uneventful in all cases, and no complications have been encountered to date. This technique is simple, safe, and inexpensive, and obviates the need for repeated outpatient visits.

Keywords Umbilicus · Umbilical granuloma

Introduction

The umbilical cord represents fusion of the yolk stalk containing the vitelline duct and a body stalk containing a pair of umbilical arteries, a single umbilical vein, and the allantois. Normally, the vitelline duct is obliterated between the 5th and 9th weeks of gestation. The umbilical arteries and vein close shortly after birth. The urachus represents the obliterated allantois, which closes at birth [3]. At the time of delivery, the cord is divided and plastic clamps are generally applied by the physician or midwife a few centimeters from the umbilical sinus.

The mean time to separation of the umbilical stump is 15.0 ± 7.2 days (range 3 days to 2 months) [6]. When the fibromuscular ring of the umbilicus closes and the cord sloughs, the ring is covered anteriorly by skin and

posteriorly by peritoneum. Pathological lesions of the area may be associated with retained umbilical-cord elements and present as inflammation, drainage, palpable masses, or a hernia, either singly or in combination.

Occasionally, following separation of the cord incomplete epithelialization may occur over the ring area and reddish granulation tissue appears. Granulation tissue is a normal stage in wound healing, but may overgrow and result in the formation of an umbilical granuloma (UG). UG is the most common umbilical abnormality in neonates, causing inflammation and drainage. It is usually visible as friable, wet, pink tissue enlarged into a “mushroom-like” or small round, cherry-red mass measuring 3 to 10 mm in diameter. Most fail to epithelialize, and persist for more than 2 months [4].

When other pathology has been discounted, the usual treatment for UG is application of a 75% silver nitrate stick, usually repeated two to three times over a number of clinic visits. Silver nitrate acts as an antiseptic, astringent, or caustic agent, depending on the chemical concentration and duration of application. Contact of this substance with the moist granuloma triggers cauterization. Burns have been reported following spillage onto the surrounding tissues [1], perhaps related to movement of the struggling infant as the chemical is applied.

Materials and methods

During a 10-year period, 302 neonates (167 female, 135 male) were treated in our outpatient clinic for UG. Regardless of the size of the granuloma, excision and application of absorbable hemostatic materials was employed in all cases: either Gelfoam (Upjohn, Kalamazoo, MI) or Surgicel (Ethicon, UK). Using sterile technique, the area is cleaned with povidone iodine. With an assistant restraining the baby's legs, the base of the granuloma is crushed with a mosquito clamp and the granuloma is removed using either the clamp or a No. 15 surgical blade. A segment of hemostatic material is applied and a waterproof dressing placed for 24 h. The parent is instructed to keep the area dry and informed that the hemostatic material is expected to develop a black discoloration. The dressing is removed at home.

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Results

Initially, all patients were seen at follow-up on the 3rd day. After the first 50 babies were found to have complete healing without complications of any nature, subsequent parents were instructed to return to the clinic if necessary. To date, no complications have been encountered.

Discussion

Standard texts continue to recommend silver nitrate application for UG, and no alternative methods for primary treatment have been discussed in the English-language literature [2, 5]. The method outlined is simple, safe, and inexpensive, and obviates the need for repeated outpatient visits during this difficult period for parents and babies.

References

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