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A Novel Strategy for Umbilical Granuloma Removal: Cutting off with a Nylon Suture Thread

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Abstract

Umbilical granuloma is a common umbilical problem in infants. Although various modalities are available for the treatment of umbilical granulomas, the best method remains controversial. A seven week old infant presented with umbilical granuloma with features of omphalitis. We treated the omphalitis first to prevent local inflammation. On the following day, the umbilical granuloma was successfully cut off with a nylon suture thread. No residue of the granuloma was left behind and no signs of local inflammation appeared. Umbilical granuloma can be successfully removed with a nylon suture thread. Treatment for omphalitis before granuloma removal may be useful to prevent local inflammation.

Introduction

Umbilical granuloma is a common umbilical problem during infancy.[1] The base of the umbilicus heals and becomes covered with squamous epithelium after cord detachment.[2] Umbilical granuloma, often followed by a seropurulent secretion, arises through incomplete epithelialization and overgrowth of granulation tissue.[3] If umbilical granuloma is not treated, the secretion may persist and cause irritation of the surrounding skin and the umbilical granuloma may become infected. Many procedures are available for the treatment of umbilical granulomas. Although silver nitrate cauterization is the most commonly used treatment, the best procedure remains controversial.[1] Herein we report the case of a seven week old infant who was diagnosed with umbilical granuloma followed by omphalitis. The umbilical granuloma was successfully removed by a nylon suture thread without causing local inflammation after treatment of the omphalitis.

Case Report

A seven week old infant, who was born at full term with an otherwise unremarkable medical history, presented with a mass protruding from the umbilicus (Figure 1). The patient did not present any signs of irritability, such as crying, suggesting that the lesion was painless. Physical examination revealed a moist and dull red-colored mass measuring 5 × 5 × 5 mm with a small amount of seropurulent secretions. We confirmed that the mass had minute roughness on the surface using a magnifying glass. The surrounding skin was normal. The patient was diagnosed with umbilical granuloma with features of mild omphalitis.

Figure 1: The umbilical granuloma before removal. Physical examination revealed a small, moist, and dull red - colored mass protruding from the umbilicus (arrowhead).

Gentamicin ointment was applied to the inflammatory lesion after cleaning with chlorhexidine gluconate. After confirming that the seropurulent secretion had disappeared on the following day, we performed granuloma removal using a 2 - 0 nylon suture thread. First, the base of the umbilical granuloma was gently ligated with the thread. Next, the umbilical granuloma was cut off by tightening the thread (Figure 2). Although a small amount of bleeding occurred, it disappeared immediately upon providing manual astriction. Finally, we cleaned the umbilicus with chlorhexidine gluconate and applied gentamicin ointment again.

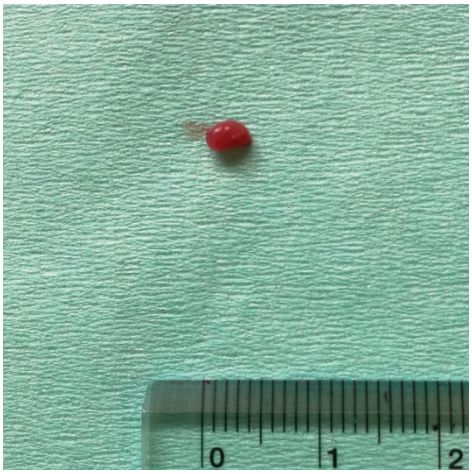

Figure 2: The removed umbilical granuloma. The umbilical granuloma was removed with a small amount of bleeding.

On Day 1 after granuloma removal, we confirmed that no granuloma residue was left behind in the umbilicus and that no signs of inflammation had appeared (Figure 3). Epithelialization progressed favorably, and neither signs of inflammation nor recurrence of granuloma appeared for more than nine months after granuloma removal.

Figure 3: Day 1 after removal. No residue was left behind and no signs of inflammation appeared.

Discussion

This case highlighted two important clinical issues. First, umbilical granuloma in an infant can be successfully removed by a nylon suture thread. Second, treatment of omphalitis before umbilical granuloma removal may be useful to prevent complications such as local inflammation.

Regarding the first issue, umbilical granuloma can be treated by various modalities. Although the best treatment option remains controversial, silver nitrate cauterization is most commonly performed.[1,2] However, chemical burns following spillage of silver nitrate onto the periumbilical area were reported as possible complications.[4] Electrocauterization and cryocauterization are other possible treatment modalities, but require special devices with high costs.[1] Skin discoloration has been reported as a complication of these procedures.[2] Application of topical steroid ointment, air drying with alcohol wipes, and application of salt are non-invasive procedures that can allow epithelialization.[5–7] Topical steroid ointment, such as clobetasol propionate, can be safely applied by family members at home.[5] The disadvantages of topical clobetasol propionate are the long time frame for treatment and the potential risks of local and systemic adverse effects like skin atrophy and hypothalamic-pituitary-adrenal axis suppression.[8] Air drying with alcohol wipes and application of salt can also be safely performed by family members at home.[2,6,7] As disadvantages, these methods require frequent repetition. Air drying with alcohol wipes needs to be performed at each nappy change.[6] For salt application, a pinch of salt is sprinkled on the granuloma after cleaning the umbilical area with a cotton pad, and the granuloma is closed with adhesive tape. The tape is opened at 30 minutes after the procedure, and the process is repeated two to three times per day for three to five consecutive days.[2,7] Double-ligature of pedunculated umbilical granuloma was also reported.[9] In this technique, the first ligature is pulled up during a second ligation at the base of the granuloma. The granuloma becomes necrotic

and drops off within seven to 14 days. The weakness of this technique is that it cannot be applied to small granulomas. Our method does not require special equipment. The procedure is simple and can be safely performed in a short time.

For the second issue, local inflammation is an important complication of surgical techniques. In the present patient, the umbilical granuloma was accompanied by mild omphalitis. We needed to prevent local inflammation after umbilical granuloma removal. Therefore, we prioritized treatment for the omphalitis. No signs of inflammation subsequently appeared after the granuloma removal. We recommend treatment for omphalitis on the day before umbilical granuloma removal when umbilical granuloma is accompanied by omphalitis.

Umbilical granuloma has a dull red color, and its surface shows minute roughness.[2] Urachal remnant, omphalomesenteric duct remnant, and umbilical polyp should be considered in the differential diagnosis. Umbilical polyp is a rare form of omphalomesenteric duct remnant consisting of intestinal mucosa at the umbilicus.[3,10] In these conditions, the mucosa has a relatively bright red color, and its surface is smooth.[2] Most umbilical granulomas can be diagnosed by careful physical examination.[2] If symptoms are atypical, ultrasonography is helpful in identifying associated abdominal anomalies such as urachal remnant, omphalomesenteric duct remnant, and umbilical polyp.[3,10]

Conclusions

Umbilical granuloma in an infant can be successfully removed with a nylon suture thread. Treatment for omphalitis before umbilical granuloma removal may be useful to prevent local inflammation. Further studies are needed to determine whether removal with a nylon suture thread can become a main therapeutic strategy for umbilical granuloma.

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