

## Umbilical Granuloma: A case report

Emanah Victor Steve <sup>1,\*</sup> and Okongko Anietienteabasi Okon <sup>2</sup>

<sup>1</sup> *Mater Misericordia Hospital, Afikpo, Ebonyi State, Nigeria.*

<sup>2</sup> *West End Hospital, Delta State, Nigeria.*

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### Abstract

After birth, remnants of the umbilical cord should separate spontaneously from the neonate within 1-2 weeks. However, in certain instances, following separation, a small red or pink moist bump forms in a neonate's umbilical stump known as an umbilical granuloma. Treatment options include the application of silver nitrate, salt application, double-ligature technique, cryosurgery, and surgical excision.

We present a 7 week old male with an umbilical granuloma treated with the double ligature technique using an absorbable suture with the disappearance of the lesion at a 1 week follow up visit.

The ligature technique is one of several methods used in the treatment of umbilical granuloma. Although non-absorbable silk sutures are commonly used for this technique, absorbable sutures can be used for lesions with a narrow stalk.

**Keywords:** Umbilical; Granuloma; Ligature; Silk; Absorbable; Neonate

### 1. Introduction

Umbilical granuloma is a common condition in neonates. It arises from excess granulation tissue at the base of the umbilicus after cord separation [1]. It appears as a fleshy, friable, moist, and pink tissue and may secrete small amounts of fibrinous exudates [2].

An incidence of 1 in 500 newborns has been reported [1]; another study done in Turkey reported a frequency of 3.8%, with a higher incidence in girls than in boys [3].

Although the exact cause of the condition is not known, it has been linked to various factors, including delayed umbilical separation, the technique of cord clamping, and the quality of cord care [2, 4].

It is a benign condition and a cause of concern for caregivers. Spontaneous resolution has not been documented in the literature, and certain complications can occur in neglected cases exposed to poor hygiene conditions. These complications include local infection, surrounding skin irritation and rarely sepsis [2, 5].

The most common and first line treatment option is topical application of silver nitrate, although there is a risk of chemical burns to the periumbilical area [6, 7, 8]. Other techniques are equally effective, and they include salt application, double-ligature technique, cryosurgery, and surgical excision.

\* Corresponding author: Emanah Victor Steve

The double ligature technique is a simple technique using sutures to cut off blood supply to pedunculated lesions. It is relatively safe and easy to perform with good cosmetics and only minor complications, but may not be effective for very small lesions [1, 9]. Another technique where the lesion is cut with a nylon suture has been reported and showed similar results [10].

We report the case of a 7 week old male infant diagnosed with umbilical granuloma and treated with the ligature technique, with the lesion disappearing at a 1 week follow-up visit.

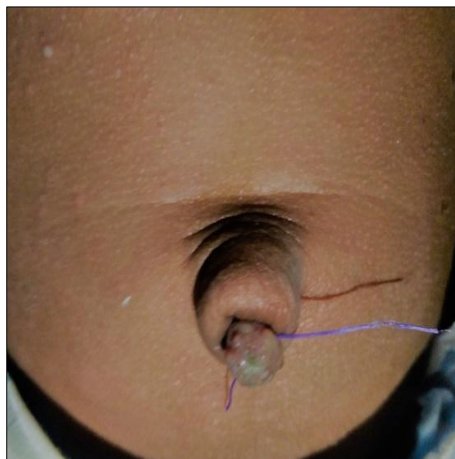
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## 2. Case presentation

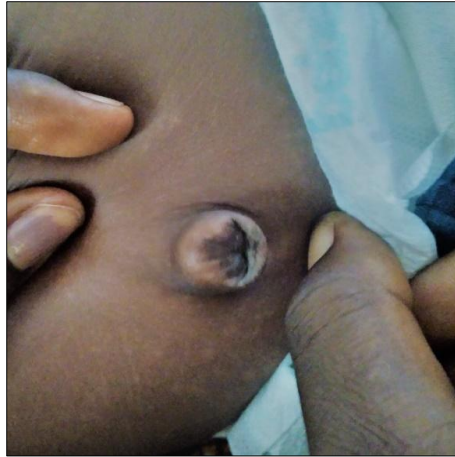
A 7-week-old male presented to the outpatient department with an umbilical mass (Figure 1). He was born at full term, and the post-natal period had been uneventful except for the mass, which was noticed by the mother three weeks earlier. He had no other symptoms and was clinically stable. Examination revealed a flesh-colored pedunculated mass protruding from the umbilicus measuring  $1 \times 1 \times 1$  cm. It was not tender, and the surrounding skin was normal. A diagnosis of umbilical granuloma was made, and the mother was reassured and informed of the management plan. On the same day, the umbilical area was prepared with chlorhexidine solution. An absorbable suture (Vicryl 2) was used. The first ligature was placed as a superficial hold, and the second suture was placed at the base of the mass and knotted twice (Figure 2). The procedure was tolerated with no complications. At a 1-week follow-up, it was observed that the mass had fallen off and no granuloma residue was observed (Figure 3).



**Figure 1** Umbilical granuloma at presentation



**Figure 2** ligature placed at the base



**Figure 3** One-week follow-up visit

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### 3. Discussion

Umbilical granuloma is the most common benign umbilical condition in newborns. It results from the failure of epithelialization after umbilical cord separation in the first few days of life [1]. The etiology is unknown but has been linked to delayed cord separation, technique of cord clamping, quality of cord care, and hygiene [2, 4].

Topical Silver nitrate is the most common method of treatment, but there is a risk of chemical burns [11]. Other methods used for the treatment of umbilical granuloma include salt application, double ligation, electrocautery, and cryotherapy.

The double ligation technique is an invasive procedure that involves the use of a stay suture, usually silk 3-0, to ligate the mass. Two ligatures are used; the first one is placed as a superficial hold, and the second one is placed at the base to completely interrupt blood supply. This technique overcomes the technical difficulty of ligating the granuloma at the base [1]. The granuloma usually falls off within 7-14 days.

The ligation method is simple to perform and has good cosmetic results with only minor complications [1]. The pedicle should be adequate for this technique, which still has a risk of bleeding with large granulomas [12]. The technique may not be applicable to very small granulomas, which are usually more common. Also, some granulomas may accidentally break off in an attempt to place two separate sutures. The double ligation technique is contraindicated for large sessile granulomas with a wide base, small deep lesions, and friable lesions, which can easily bleed [9, 13].

In this patient, an absorbable suture was used due to the unavailability of the usual silk suture and other suture types at the time of the patient encounter. Silk sutures are usually unavailable in rural areas of Nigeria. Silk suture has the advantage of easy handling and knotting tie securely, but the particular reason for its usage in the ligation technique is not clear [14]. Absorbable sutures have been recommended for the ligation of pedunculated granulomas with a narrow stalk [5].

In our patient's case, the granuloma had fallen off at a one-week follow-up visit. This may suggest that the granuloma can fall off if the blood supply is interrupted with a suture, regardless of suture type. Most treatments for umbilical granuloma are effective but should be individualized, considering family and health center facilities especially in resource-limited settings [15].

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### 4. Conclusion

The ligation technique is one of several methods used in the treatment of umbilical granuloma. Although silk sutures are commonly used for this technique, other suture types can be used in resource-limited settings and for lesions with a narrow stalk, as similar results may be achieved.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

### *Statement of informed consent*

I obtained consent from the mother of this patient.

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