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CASE REPORT

Exuberant Granulation Complicating an Episiotomy Wound: Case Report on the Treatment Using Surgical Excision and Estrogen Vaginal Cream

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Background: Poor wound healing may limit body functionality and is an indication for clinical intervention. Excessive formation of granulation tissue above the edge of the skin surrounding a wound without re-epithelization is termed exuberant granulation, or proud flesh. It is uncommonly reported as a complication of an episiotomy wound.

Aim: This study aimed to report exuberant granulation that complicates an episiotomy wound with a friable vaginal epithelium and to describe the successful treatment of the lesion with surgical excision and topical conjugated equine estrogen vaginal cream.

Case Report: A 24-year-old para 1 had spontaneous vaginal birth of a normal baby at term in a district hospital. Five months later, she presented to a regional hospital with complaints of pain and incomplete wound healing at the episiotomy site. She had used topical povidone-iodine ointment with no success. Following a physical examination, an exuberant granulation at the episiotomy wound was diagnosed. The lesions were located mostly at 5 to 7 o'clock position in the vagina which had a thin and friable mucosa. The patient was treated with surgical excision and postoperative topical conjugated equine estrogen vaginal cream 0.625 mg per 1 g at a dose of 0.5 g per intravaginal application twice weekly for two weeks, and thereafter once weekly for one week. A review after 6 weeks, 12 weeks, and 6 months confirmed complete wound healing and normal function of the genitalia.

Conclusion: Exuberant granulation that complicates an episiotomy wound with friable vaginal mucosa is amenable to surgical excision and postoperative intermittent intermediate doses of topical conjugated equine estrogen vaginal cream.

Keywords: episiotomy, estrogen vaginal cream, exuberant granulation, proud flesh, surgical excision, wound healing

Introduction

Poor wound healing may limit activities of daily living, quality of life, and compromise future health status. An Episiotomy, which is an obstetric procedure performed during approximately 21–91% of vaginal births,[1] and has rightfully experienced restrictive use,[2] may be the site of poor wound healing. Exuberant granulation is one of the outcomes of poor healing and entails an excessive formation of granulation tissue that grows above the edge of the surrounding skin of a wound without re-epithelization. It is rarely reported to complicate an episiotomy scar, but has been found in 49% of 56 women who had dyspareunia after episiotomy.[3] This calls for appropriate management of obstetric wounds using effective interventions. For instance, a recent systematic review and meta-analysis of randomized controlled trials on the use of honey for cicatrization and pain control of obstetric wounds including episiotomy showed that honey accelerates wound healing and decreases reported pain.[4]

The index case report is on exuberant granulation tissue in an episiotomy wound with a friable vaginal epithelium. This case report aims to report the successful treatment of the lesion using surgical excision and postoperative estrogen vaginal cream therapy.

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Case Presentation

A 24-year-old para 1 woman of African descent gave birth to a normal 3100 g female baby at 40 weeks' gestation in a district hospital.[5] Five months later, the patient, who was self-referred, presented to the outpatient gynaecology clinic of a regional hospital with a painful growth at the site of the left mediolateral episiotomy. She had no obvious puerperal sepsis. The patient had tertiary education, but no history of allergy, nor personal/family history of poor wound healing. The pain made it difficult for her to attempt coitus after birth. She used topical povidone-iodine ointment with no success. Physical examination revealed an exuberant tissue on the episiotomy scar at the 5 o'clock position of the introitus that extended superiorly into the lower third of the vagina and inferiorly into the upper part of the thigh (Figure 1). The lesion was also present in the fourchette from the 5 to 7 o'clock position. No obvious risk factor for exuberant granulation was identified, except for being an African.

The differential diagnoses were exuberant granulation tissue, granulomatous disorder (such as foreign body granulomas), pyogenic granuloma (lobular capillary hemangioma) that develops due to irritation, chronic graft-versus-host disease (cGVHD), keloid, and malignant lesions such as aggressive fibromatoses. cGVHD was excluded because there was no history of tissue grafting. The lack of epithelization excluded keloid. She was counseled, consented to, and underwent a cold knife excision biopsy aided by local bupivacaine hydrochloride (Marcaine) infiltration to minimize bleeding, and the surgical sites were sutured using polyglactin 2–0. During suturing, the vaginal epithelium in the vicinity of the lesion was thin and friable, as the stitches easily cut through the vaginal mucosa. There were no other features of hypoestrogenism. The lesions were discrete and sessile in attachment with a maximum diameter of 1.5 cm. Postoperatively and after discussion with a multidisciplinary team that included a urogynecologist, to treat the atrophic vaginal mucosa, she was prescribed topical conjugated equine estrogen vaginal cream 0.625 mg per 1 g, using 0.5 g per intravaginal application. This was the most appropriate available medication to assist with rejuvenation of the friable vaginal tissue.[6,7] The patient applied the cream intravaginally twice a week for two weeks and then once a week for one week. This was an intermediate dose (which ranges from 0.3 to 0.5 mg of conjugated equine estrogen).[8] The therapy was intermittent and of a short duration to minimize the effects of any systemic absorption. There is no specific dose

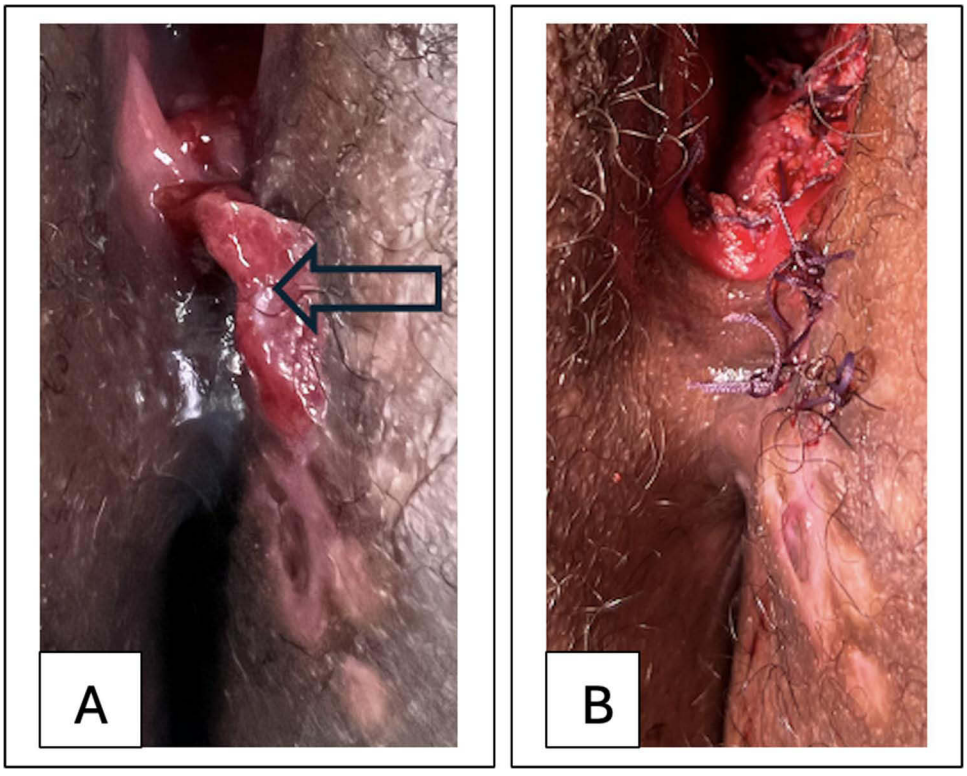

Figure 1 Exuberant granulation (arrow in (**A**)) and site of the lesion following surgical excision (**B**).

recommended for premenopausal women,[9] making its use controversial. Despite the controversy, data from a recent Danish study show a reassuring safety profile.[10,11] Therefore, conjugated equine estrogen remains a recommended treatment option for vulvovaginal atrophy in women.[12]

The histological report confirmed exuberant granulation tissue. No foreign body or residual surgical suture was identified in the specimen. A follow-up review at 12 weeks and 6 months confirmed normal wound healing and genitalia function.

Discussion

The phases of wound healing are four, namely: hemostasis, inflammation, proliferation, and remodeling.[13] The process involves the formation of granulation tissues, which are fibroblasts surrounded by an abundant extracellular matrix, new blood vessels, macrophages, and other inflammatory cells. An abnormality in any of the phases of wound healing may cause a wound complication. These wound complications may be due to inadequate formation of granulation and scar tissues causing dehiscence and ulceration; excessive formation of the components of the repair process resulting in hypertrophic scar, keloid, and/or exuberant granulation tissue formation; and excessive wound size contraction leading to contracture deformity.[14] An excessive formation of granulation tissue that grows above the edge of the surrounding skin of a wound without re-epithelization is called exuberant granulation, hypergranulation, overgranulation or proud flesh.[15,16] Hypertrophic scar occurs if collagen formation in the wound becomes excessive, remains within the boundary of the wound, and grows above the level of the skin with re-epithelization. In contrast, the growth of the re-epithelized excessive collagen beyond the boundary of the wound is keloid.[14] It appears that keloids have individual susceptibility and racial predisposition as it is inexplicably predominant among people of African, Asian, and Hispanic descent.[14,17] The risk factors for exuberant granulation, hypertrophic scar, and keloid include traumatic or thermal injury that extends to the dermis of the skin.[14]

Furthermore, invagination of the surface epithelial edge during wound closure is also a risk factor for exuberant granulation. Other risk factors for exuberant granulation include healing by secondary intention, prolonged occlusive wound dressing,[15] wound sepsis, non-administration of perioperative antibiotics when indicated,[18] and the use of chromic catgut compared to polyglactin (Vicryl).[19] For instance, it complicates 10% of post-hysterectomy vaginal vaults closed with polyglactin, particularly when there is cuff cellulitis,[20] and up to 34% of vaults closed with chromic catgut.[21] Of these predisposing factors, the patient is African.

Typically, identification of the possible cause[15] and factors associated with the exuberant granulation (such as atrophic vaginal mucosa as in the index case) as well as the patient's preferences and local protocol will guide choice of treatment. The treatment includes the use of the following as a single therapy or in combination with other interventions. These therapies are wound dressing,[22] topical antibiotics, corticosteroids, gentian violet stain,[23] chemical cauterization (including the use of silver nitrate or Monsel solution), electrocautery, cryotherapy, and excision biopsy.[19] The use of honey-based products,[24] cadexomer-iodine, or povidone-iodine for approximately 10–14 days are other effective treatment options.[15] However, success in the treatment of exuberant granulation using honey for wound dressing for three weeks has been reported.[25] Of note, the patient used povidone-iodine ointment without success.

Cold knife excision of exuberant granulation does not cause thermal damage and prevents artifact formation at the surgical margin of excision, which assists with histological evaluation of the specimen and is arguably a good management option. For instance, recurrence of exuberant granulation after excision may occasionally occur due to a condition called desmoids, or aggressive fibromatoses, which is a low-grade tumor with borderline characteristics because it lies at the interface between malignant and benign neoplasia.[14] This calls for a treatment that allows histological evaluation of the granulation tissue. Although intralesional corticosteroid infiltration is also an option, this involves repeated doses administered by the provider and may not be acceptable to some patients. In contrast, topical conjugated equine estrogen vaginal cream is patient-administered, rejuvenates the vaginal tissue amidst the relative hypoestrogenic state that occurs in postpartum and breastfeeding mothers,[7] and this informed the preference for its use after surgical excision. Although topical vaginal estrogen may be safe,[26] it is best administered as a low- or ultralow-dose preparation (such as conjugated equine estrogen, estriol, estradiol, and promestriene [3-propyl 17β -methyl diether estradiol])[12] to minimize systemic absorption that can increase endometrial thickness. While honey is effective in the treatment of obstetric wounds and shows promise in animal studies as a protective agent for genital atrophy, there are no long-term studies and definitive conclusions

Table 1 Key Messages

S/No	Key Message
1	Exuberant granulation (proud flesh) is a complication of wound healing.
2	Risk factors include traumatic or thermal injuries, invagination of surface epithelial edge during wound closure, healing by secondary intention, wound infection, and use of chromic catgut compared to polyglactin (Vicryl).
3	Exuberant granulation in an episiotomy site with friable vaginal tissues is rarely reported.
4	Surgical excision followed by intravaginal estrogen vaginal cream are effective therapy.
5	Episiotomy site inspection on postpartum days 7, 42 and as needed may improve care.

about its efficacy in the treatment of urogenital atrophy in humans as in the index patient with atrophic vaginal mucosa.[27–29] Topical corticosteroid cream, on the other hand, was not used postoperatively in the index patient because of the concern that the lesion has been excised and the therapy may impair wound healing, unlike topical estrogen cream.

In managing episiotomy generally, a mediolateral episiotomy with an incision made between 45 and 80 degrees (preferably 60 degrees) from the vertical using appropriate technique;[30–33] avoidance of risk factors for exuberant granulation; and inspection of the wound on postpartum day 7,[34] day 42, and as the need arises are recommended by the author to prevent complications (Table 1). The inspection will provide an opportunity for the identification of maternal postpartum danger signs and the management of wound complications.[35] Of note, to enhance the healing of an episiotomy wound, agents such as honey or curcumin may be applied to the wound.[36] Honey is a cost-effective and accessible wound treatment option.[37] An innovative meta-analysis conducted by Barbosa et al evaluated the effects of honey on scar tissue formation in obstetric wounds. According to the study's results, honey treatments showed greater efficiency than placebo and provided benefits to patients by accelerating wound healing and reducing reported pain.[4] The healing/cicatrization properties of honey include the following effects on the wound: hydrogen peroxide, acidity, osmolarity, antioxidant, prostaglandin, nitric oxide and nutrition (sugars, vitamins, phenolic acids, flavonoids, and minerals).[4,38] However, the challenge is that the composition of honey may differ depending on the geographical region, climate, flowers, and species of bees. Importantly, there are reports suggesting that the two types of medical-grade honey (MGH) which have shown effectiveness in wound healing and bactericidal abilities are Medihoney and Manuka honey.[4,24,38]

Conclusion

Surgical excision with post-operative estrogen vaginal cream therapy may be effective in the treatment of exuberant granulation that complicates an episiotomy wound. This treatment may be used when the vaginal epithelium is friable, although additional data are required from future studies to conclusively show the effectiveness of this therapy. In patients with similar clinical presentations, however, the use of honey is a potential treatment option.

Data Sharing Statement

All data about the present study are included in this article.

Ethical Approval and Consent for Publication

Written informed consent was obtained from the patient for the publication of this case report. However, institutional approval was not required to publish the case details. A single case report (less than three in number) is exempted from research ethics approval in our jurisdiction as stated in: South African National Department of Health. South African Ethics in Health Research Guidelines: Principles, Processes and Structures 2024. Page 57. Available from: https://www.witshealth.co.za/Portals/0/2024/Documents/NDoH-2024-Health-Research-Guidelines-3rdEdition-v0.1.pdf (accessed 11 November 2024).

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Disclosure

The author has no competing interest to declare for this study.

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