

Timolol For the Treatment of Infected Pyogenic Granuloma (pg) Over the Nose.Heba Yousef al-Ojailand^{1*}¹Teaching Assistant, King Faisal University Kingdom of Saudi Arabia, Eastern Province***Corresponding author**

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Pyogenic granuloma (PG) is a benign vascular neoplasm, which exhibits several clinical features suggestive of reactive neovascularization. It is common in children and young adults, with a slight predominance in women. PG may occur spontaneously or may result from local trauma. Histologically the lesion of pyogenic granuloma. Proliferating capillaries are often grouped into lobules by dense fibrous bands, hence the synonym lobular capillary hemangioma. The lesion is often clutched by an epithelial. On dermoscopy Red homogenous areas intersected by whitish lines – most common in pyogenic granuloma. There are no standard guidelines for the management of PG So invasive or noninvasive approach.

Key Message

Topical timolol therapy may be the first line of treatment for infected pyogenic granulomas; no adverse systemic effects were reported, over delicate areas like the nose - face on young children, older people, where invasive methods are not preferred, topical timolol may be a therapy option.

Objectives

to determine whether topical timolol is safe and effective for treating Infected pyogenic granulomas..

Methods

We report an A 15-year-old female patient came in with a history of a single, rapidly expanding red lesion on the left side of her nose that had been developing in size for more than a month and was accompanied by minor pain and itching. In addition to unilateral purulent discharge from inside the nose, there was a history of a mild bleeding episode a few days before to consultation. The patient disclosed that she had her nose pierced a month earlier.

Suggesting that infected pyogenic granuloma (PG) may coexist. The patient was prescribed timolol twice daily and trimethoprim/polymyxin four times daily with a pyogenic granuloma as the presumptive diagnosis.

Results

Significant improvement was noted with topical timolol with reduction of the lesion size decrease of bleeding tendency and here symptoms had resolved.

Limitations

we observed Effects of treatment only in 8 weeks.

Conclusion

Infected pyogenic granulomas may benefit from topical timolol therapy Longer studies are needed to evaluate resolution and recurrence Rates.

Key Words : lobular capillary hemangioma; pyogenic granuloma; timolol; topical treatment.**Introduction**

Pyogenic granuloma (PG) is a benign vascular neoplasm, which exhibits a number of clinical features suggestive of reactive neovascularization. Clinical presentation Is usually in the form of a

rapidly growing, friable, red papule or polyp that might ulcerate, and mainly affects the face and fingers, It is common in children and young adults, with a slight predominance in women [1]. PG may occur spontaneously or may result from local trauma.

Treatment is often necessary because of the tendency to bleed, ulcerate and expand, Surgical management is preferred, but there are numerous other treatment options, invasive:(surgical excision by electrocautery, shave removal, curettage, LASERs microembolization, sclerotherapy), noninvasive—topical application of imiquimod, 0.5% timolol gel [2-5]. corticosteroid Trichloroacetic acid [6, 7].

Case Report

A healthy 15-year-old female presented with a history of a solitary rapidly growing red lesion increase on size for more than 1 month on the left side of the nose, associated with mild pain, and pruritus. There was a history of a minor bleeding episode a few days prior to consultation in addition to unilateral purulent discharge from inside the nose. The Patient gave a history of nose piercing a month before. On examination a red nodular lesion located on the left ala

of the nose was seen (Figure 1, A). There was purulent discharge over the base of lesion inside the nose. On dermoscopy, red homogeneous areas are intersected by white lines was seen

Diagnosis of pyogenic granuloma with secondary bacterial infection was made. The patient was prescribed 1 g of Augmentin (Amoxicillin 800mg.+Clavulanic acid 200mg) twice daily, for 7 days and at follow-up 1 week later, the pain and symptoms had resolved. The patient was hesitant to undergo removal procedures, so she was started on topical timolol 0.1% (1 drop twice daily for 2 weeks), and at follow-up 2 week later, there was a significant reduction in lesion size (Figure 1, B), resolution of the bleeding led to high patient satisfaction with the treatment The regimen was well tolerated, with no side-effects, good compliance, follow-up at 4 weeks showed almost complete resolution (Figure 1, C).



Figure 1: A, pyogenic granuloma localized on the left Ala area of the nose of a 15 year-old female; B, close view after 2 weeks of 0.1% timolol application C, final result at 4 weeks after.

Discussion

Pyogenic granuloma (PG) – also known as lobular capillary hemangioma - is a benign vascular neoplasm that occurs on the skin and mucous membranes, if Pyogenic granuloma located nasal or intranasal generally presents with recurrent epistaxis, nasal obstruction, rhinorrhea, and pain. [8] There are only 19 previously known cases in the pediatric literature, five of which are restricted to the anterior nasal septum, and none of which have been described at the nose's Ala [8].

Histologically the lesion of pyogenic granuloma. Proliferating capillaries are often grouped into lobules by dense fibrous bands, hence the synonym lobular capillary hemangioma The lesion is often clutched by an epithelial. There are no standard guidelines for the management of PG So invasive or noninvasive approach for younger patients, those who are not good surgical candidates, those who have erupting lesions, or those who have minor lesions

in delicate aesthetic areas, may benefit from noninvasive therapy. Noninvasive Treatment of Pyogenic Granulomas in Young Children such as —topical application of imiquimod, 0.5% timolol gel [4,5]. corticosteroid The topical treatment that has been documented up to this point is imiquimod 5% cream, but it causes a significant inflammatory response and discomfort that is typically worse than simple surgical excision or curettage [6, 7].

β -blockers are a promising PG treatment option in cases where invasive modalities are not desirable especially in younger patients [9]. timolol have excellent safety profiles and are widely used for numerous pediatric. β -Adrenergic receptors on vascular endothelial cells promote proangiogenic chemicals like VEGF and bFGF, cause peripheral vasodilation, and inhibit the apoptosis of endothelial cells. In contrast to their robust expression in infantile hemangiomas, beta-adrenergic receptors are only faintly expressed in pyogenic granulomas, occurring in just 50% of them [10].

Topical treatment can be continued as long as improvement is seen; if PG does not improve, or if side effects are noted, another topical medication or procedure can be pursued. Lesions with concerning features should be evaluated and biopsy may be required. To maximize therapeutic responses, appropriate protocols must be created. Parents and patients should be informed that excision may be pursued later if topical therapy does not prove effective.

However, these cases raise the possibility of using α -adrenergic receptor antagonists for pyogenic granulomas that pose therapeutic problems, in individuals for whom procedural procedures are not wanted or have failed to permanently treat the lesion.

Timolol may be an effective and preferable alternative to surgery for a typical small pyogenic granuloma, especially in adolescents and young adults [11].

Consent

Written informed consent was obtained from the patient parents for publication of this case report and accompanying images.

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Data Availability Statement

Data are available upon reasonable request. Data related to this study could be accessed from the corresponding author upon reasonable request.

Reference

1. Fortna, R. R., & Junkins-Hopkins, J. M. (2007). A case of lobular capillary hemangioma (pyogenic granuloma), localized to the subcutaneous tissue, and a review of the literature. The

- American journal of dermatopathology, 29(4), 408-411.
2. Rai, S., Kaur, M., & Bhatnagar, P. (2011). Laser: a powerful tool for treatment of pyogenic granuloma. *Journal of cutaneous and aesthetic surgery*, 4(2), 144.
 3. Forman, D., & Goldberg, H. I. (1990). Microembolization and resection of a highly vascular pyogenic granuloma. *Journal of oral and maxillofacial surgery*, 48(4), 415-418.
 4. Malik, M., & Murphy, R. (2014). A pyogenic granuloma treated with topical timolol. *British Journal of Dermatology*, 171(6), 1537-1538.
 5. Wine Lee, L., Goff, K. L., Lam, J. M., Low, D. W., Yan, A. C., & Castelo-Soccio, L. (2014). Treatment of pediatric pyogenic granulomas using β -adrenergic receptor antagonists. *Pediatric dermatology*, 31(2), 203-207.
 6. Moustafa, D., Neale, H., Ostrowski, S. M., Gellis, S. E., & Hawryluk, E. B. (2021). Topical corticosteroids for noninvasive treatment of pyogenic granulomas. *Pediatric Dermatology*, 38, 149-151.
 7. Chiriac, A., Birsan, C., Podoleanu, C., Moldovan, C., Brzezinski, P., & Stolnicu, S. (2016). Noninvasive treatment of pyogenic granulomas in young children with topical timolol and trichloroacetic acid. *The Journal of Pediatrics*, 169, 322-322.
 8. A rare case of pediatric intranasal lobular capillary hemangioma, *International Journal of Otorhinolaryngology and Head and Neck Surgery* Schild SD et al. *Int J Otorhinolaryngol Head Neck Surg*. 2020 Nov;6(11):2115-2118.
 9. Topical β -blockers for pyogenic granulomas: A promising option for younger patients.
 10. Greenberger, S., & Bischoff, J. (2011). Infantile hemangioma—mechanism (s) of drug action on a vascular tumor. *Cold Spring Harbor perspectives in medicine*, 1(1), a006460.
 11. Randomized Controlled Trial, Effectiveness and safety of 0.5% timolol solution in the treatment of pyogenic granuloma: A randomized, double-blind and placebo-controlled study, *Indian J Dermatol Venereol Leprol* actions of . 2022 May-Jun;88(4):500-508.
 12. El-Taweel, A. E. A. I., Al-Refaie, A. A. A. S. A., Salem, K. H. A., & Salem, R. M. (2021). Topical β -blockers for pyogenic granulomas: A promising option for younger patients. *Journal of Cosmetic Dermatology*, 20(6), 1801-1806.

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