SCIENTIFIC ARTICLE

The Zitelli Bilobed Flap on Skin Coverage After Mucous Cyst Excision: A Retrospective Cohort of 33 Cases

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Purpose To study the time to wound healing and recurrence rate achieved in the treatment of distal interphalangeal joint mucous cysts using the Zitelli modified bilobed flap.

Methods We surgically treated 33 patients from January 2006 to June 2015. We assessed demographic data, comorbidities, location and size of the cyst, time to wound healing, and complications.

Results The most affected finger was the right middle finger. All flaps survived and wounds healed in 14 days on average. The mucous cyst recurred in 1 of 33 cases. There were no major complications.

Conclusions The Zitelli bilobed flap can provide good-quality skin coverage over the distal interphalangeal joint in a short period. *(J Hand Surg Am. 2017;■(■):1.e1-e5. Copyright © 2017 by the American Society for Surgery of the Hand. All rights reserved.)*

Type of study/level of evidence Therapeutic IV.

Key words Bilobed, coverage, cyst, flap, mucous.

Online Exclusive

Mucous cysts of the digits are a frequent occurrence in hand surgery. The natural history of the mucous cyst has been widely debated and it is currently accepted that they are composed of a hernia sac that originates from osteoarthritic degeneration of the distal interphalangeal (DIP) joint. An underlying osteophyte is usually present.[1–3] They are generally small but may cause discomfort.[4]

Numerous treatments have been reported ranging from simple aspiration to DIP joint arthrodesis to ensure prevention of cyst recurrence.[1,2,5–10]

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Surgical management is not mandatory. In fact, nonsurgical management is the rule if the condition is asymptomatic, but excision may be necessary if the overlying skin is thinned or if the patient reports important symptoms. Some authors report healing of the thinned skin over the cysts; others report that even full-thickness skin defects can be left to heal secondarily,[11] but this may take a protracted time until clinical resolution. The thinned skin may ulcerate, creating direct communication with the DIP joint and increasing the risk of septic arthritis, a complication that could be avoided with proper coverage.[4] In addition, many authors believe that the risk of recurrence is also reduced by these flaps because they allow excision of mucous deposits invading the thin skin overlying the cyst.[1,5,7] For this reason, many authors advocate skin excision and the use of local flaps to cover the resulting defect.[2,6,12,13]

Many flaps have been described to provide this skin coverage, including some bilobed flaps with different designs.[14,15] In 1918, Esser reported a self-closing bilobed flap for nasal tip skin injuries, later

TABLE 1. Patients' Gender, Comorbidities, Size of Cyst, Time to Wound Healing, and Complications (n = 33)

Patients' data	Result
Gender, n (%)	
Female	24 (72.7%)
Male	9 (27.3%)
Comorbidities, n (%)	
Obesity	2 (6%)
Diabetes Mellitus	3 (9%)
Arterial hypertension	7 (21.2%)
Smoker	3 (9%)
Former smoker	3 (9%)
Cyst size, mm	
Average	7.1 x 5.8
Minimum	3 x 2
Maximum	12 x 11
Time to wound healing, d	
Average	14
Minimum	9
Maximum	19
Complications, n (%)	
Donor area skin necrosis	1 (3%)
Superficial infection	2 (6%)
Recurrence	1 (3%)

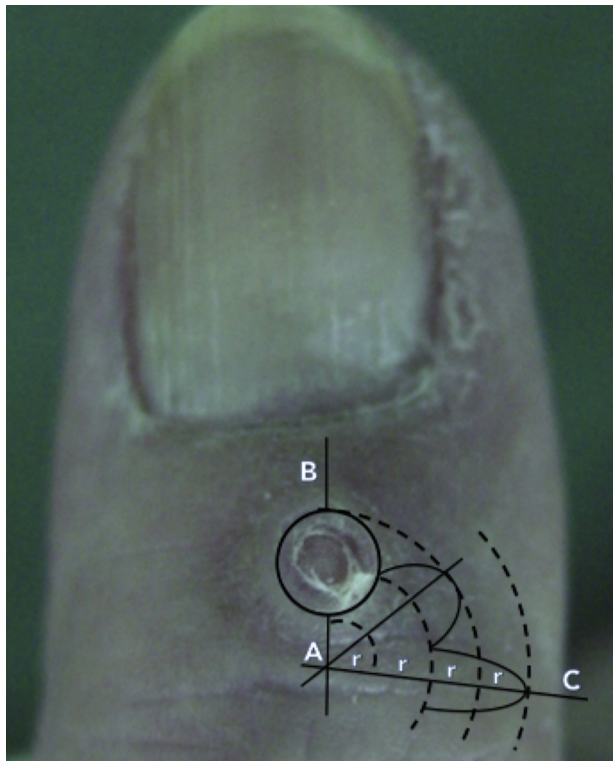

FIGURE 1: Geometric landmarks for the bilobed flap design. r indicates the cyst radius; A, the center of flap rotation; line B, the axis of the cyst; and line C, the axis of the third lobe. The BC angle should be between 90° and 100°.

modified and popularized by Zimany.[14] Its use for mucous cysts in the digits was first reported by Young and Campbell,[12] who reported that its preoperative design was challenging. Zitelli[16] reported a modified geometric design that facilitates flap drawing and reproducibility. It was first reported as a treatment for mucous cyst in 9 patients, with good outcome by Jager et al.[2]

The purpose of this study was to investigate the time to healing, recurrence rate, and aesthetic results achieved in the treatment of DIP joint mucous cysts using the Zitelli modified bilobed flap.

MATERIALS AND METHODS

After we obtained approval from the institutional review board at Hospital Universitario HM Montepríncipe, we identified a retrospective cohort of 33 digits in 31 patients surgically treated for a DIP joint mucous cyst using the Zitteli bilobed flap from January 2006 to June 2015.

The diagnosis was made based on clinical findings and plain x-rays. Inclusion criteria were patients diagnosed with a DIP joint mucous cyst with thinned and eroded skin over the cyst treated surgically using the Zitelli modified bilobed flap. Exclusion criteria were septic DIP arthritis and subungual cysts resulting in severe nail deformity.[17] Minor nail deformities such as grooves or flattening and previous local procedures such as percutaneous drainage or cryotherapy were not considered exclusion criteria.

The authors performed no punctures or injections before surgery, to avoid the risk of articular infection; 2 of them performed all procedures.

In addition to demographic data and comorbidities, the location and size of the cyst were documented (Table 1). The period to wound healing and complications, such as nail deformity or cyst recurrence, were assessed throughout the follow-up period. Wound healing was defined as the skin incision being completely closed after removal of the stitches with no wound dehiscence during range of motion.

All preoperative and follow-up examinations were performed and data were collected by all authors.

Surgical technique

The surgery was performed under a digital nerve block using 1% mepivacaine. A digital tourniquet was applied as described by Salem[18] and optical loupes