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Treatment of Digital Mucous Cysts with a Carbon Dioxide Laser

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Digital mucous cysts are common tumours of the distal interphalangeal joint, causing pain, cosmetic disfigurement and nail deformities. This study describes six patients suffering from digital mucous cysts, some of which recurred after surgery. Carbon dioxide laser vaporization was performed under local anaesthesia, resulting in complete remission in four out of six patients. In two patients, the mucous cyst recurred within 3 weeks and 11 months, respectively, after laser therapy. Although complete remission cannot be achieved in all patients, carbon dioxide laser vaporization of mucous cysts is fast and easy to perform. No side-effects of therapy, such as nail deformities, pain or infection, occurred. For this reason, more aggressive treatments, such as radical excision of the cyst, could be restricted to cases in which carbon dioxide laser therapy fails. ***Key words: laser vaporization; myxomatous cyst; digital cyst; ganglion.***

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Digital mucous cysts are common solitary pseudocysts that often occur on the dorsum of the distal digit between the distal interphalangeal joint and the proximal nail fold. The lesions are sometimes painful and they present as circumscribed, semi-translucent and compressible, flesh-coloured nodules, which produce a clear viscous fluid. Some tumours are connected with the joint space and the cysts arise supposedly from the capsule of an arthritic joint (1, 2). The histopathology of mucous cysts is similar to that of ganglions or synovial cysts. As the wall of the cyst has no cellular lining, it is described as a pseudocyst (3).

The treatment of choice has been simple excision or radical excision followed by skin grafting (1, 2, 4). However, as a consequence of surgical excision, scar formation and irreversible deformation of the nail can occur. Furthermore, recurrences after surgical treatment are common (5). Local injection of either hyaluronidase or diluted glucocorticoid suspension, repeated incisions and drainage, multiple punctures, electrocoagulation, use of phenol as a chemocaustic and freezing with carbon dioxide or radiation therapy have been described as treatment alternatives (6, 7).

We report here on six patients diagnosed with a digital mucous cyst, who were treated by carbon dioxide laser vaporization.

PATIENTS AND METHODS

Laser technique

In each patient the mucous cyst was located on the distal dorsum of the digit between the distal interphalangeal joint and the proximal nail fold. The size of the lesions ranged between 5 mm and 8 mm. After obtaining local anaesthesia (digital block) of the finger, the cyst was punctured with the carbon dioxide laser (CO_2 laser, 5 – 10 Watts). After squeezing out the clear jelly-like content, the cyst was completely vaporized, taking great care to avoid injury to the underlying nail matrix, which could result in permanent nail deformity. The lesion

Table I. *Clinical data of the patients with mucous cysts*

Patient number	Sex/Age (years)	Location and size of the cyst	Duration of disease	Associated nail deformity	Previous therapy and outcome	Outcome and follow-up after CO_2 laser
1	F/61	D I, left hand, 7 mm	3 months	None	No previous therapy	CR up to 2 years after CO_2 laser
2	M/63	D III, right hand, 7 mm	7 months	Grooving of the nail	Several incisions, followed by prompt recurrence	CR up to 1 year after CO_2 laser
3	F/73	D II, right hand, 6 mm	2 weeks	None	No previous therapy	CR up to 4 years after CO_2 laser
4	F/57	D IV, left hand, 5 mm	2 years	Grooving of the nail	Two excisions, followed by prompt recurrence and infection	CR up to 1 year after CO_2 laser
5	F/67	D II, left hand, 7 mm	1 year	None	No previous therapy	Recurrence 11 months after CO_2 laser
6	F/58	D IV, right hand, 8 mm	1 year	None	Electrodesiccation, intralesional corticosteroids, followed by prompt recurrence	Recurrence 3 weeks after CO_2 laser

CR, complete remission.

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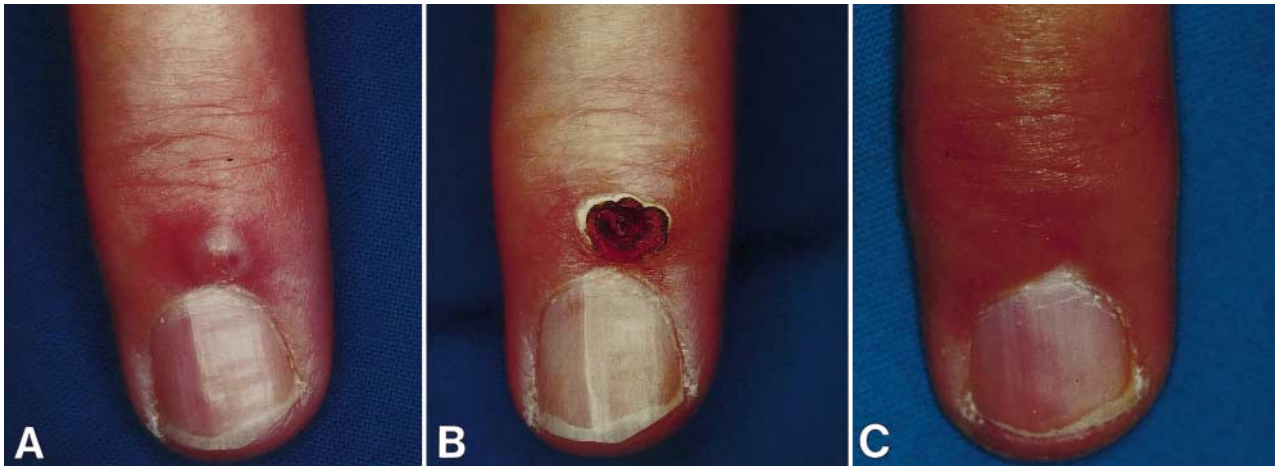

Fig. 1. (A) Preoperative view, showing a mucous cyst of the distal interphalangeal joint with resultant longitudinal groove in the nail plate of a 63-year-old man. (B) Intraoperative view after vaporization of the cyst with the carbon dioxide laser under local anaesthesia and (C) postoperative appearance 4 months after therapy.

was cleansed with hydrogen peroxide (H_2O_2) to assess the residual cystic space. Vaporization was continued until no evidence of residual cyst was found. Except for local anaesthesia, patients reported no pain or discomfort during or after laser treatment. The clinical data are shown in Table I.

RESULTS

The results are shown in Table I. Four patients experienced complete remission of the lesions within a follow-up period of between 1 and 4 years. No complications or side-effects of the therapy occurred. Scarring at the site of laser vaporization was only minimal. In two patients with a preoperative grooving of the nail, the nail deformity resolved after successful laser treatment of the cyst. In patient number 4, a second mucous cyst appeared on the other hand 11 months after laser therapy, which was also treated by CO_2 laser vaporization. In patients 5 and 6, the lesions recurred 3 weeks and 11 months after CO_2 laser therapy. These patients were referred to a hand surgeon for radical excision of the cyst.

DISCUSSION

After warts, mucous cysts are the most common ungual tumours. The cysts occur predominantly in patients aged between 40 and 70 years, approximately 70% of the patients being women (6). The lesions are often associated with cosmetic disfigurement, fingernail deformities, discomfort or pain (1). No treatment modality for mucous cysts, with the possible exception of arthrodesis, can ensure that the lesion will not recur (6). In case of simple excision the recurrence rate is 25% or higher (3, 6, 8), and 36% of the lesions reappear after aspiration or decapping with instillation of local corticosteroids (6). The potential risks of surgical treatment are persistent swelling and pain, decreased range of motion, infection and persistent nail deformity acquired postoperatively (5).

One report in the literature describes the successful treatment of mucous cysts by CO_2 laser vaporization, suggesting that this treatment modality is an effective and practical tool in the management of digital mucoid cysts (9). In our series of six patients, recurrence of the mucous cyst was observed in two patients. Since all mucous cysts were located above the germinal matrix of the nail, careful laser therapy was necessary in order to avoid permanent nail deformities. More aggressive laser therapy would probably have avoided recurrence of the lesion, but enhanced the risk of side-effects.

Treatment of mucous cysts with a CO_2 laser is a technique which is easy and fast to perform, and the risk of infection is low. In contrast, surgery has to be performed by a skilled hand surgeon, and asepsis and blood-stasis are necessary. The cystic lesion can be precisely vaporized by the laser, while preserving the surrounding normal tissue and nail matrix. However, as reported for most other techniques applied for mucous cysts, recurrence of the lesion can occur after treatment. Nevertheless, a radical excision followed by skin grafting could be restricted to cases where CO_2 laser vaporization has failed.

REFERENCES

1. Brown RE, Zook EG, Russell RC, Kucan JO, Smoot EC. Fingernail deformities secondary to ganglions of the distal interphalangeal joint (mucous cysts). Plast Reconstr Surg 1991; 87: 718 – 725.
2. Kleinert HE, Kutz JE, Fishman JH, McCraw LH. Etiology and treatment of the so-called mucous cyst of the finger. J Bone Joint Surg 1972; 54: 1455 – 1458.
3. Goldman JA, Goldman L, Jaffe MS, Richfield DF. Digital mucinous pseudocysts. Arthritis Rheum 1977; 20: 997 – 1002.
4. Kasdan ML, Stallings SP, Leis VM, Wolens D. Outcome of surgically treated mucous cysts of the hand. J Hand Surg Am 1994; 19: 504 – 507.
5. Fritz GR, Stern PJ, Dickey M. Complications following mucous cyst excision. J Hand Surg B 1997; 22B: 222 – 225.
6. Dodge LD, Brown RL, Niebauer JJ, McCarroll HR. The treatment of mucous cyst: Long-term follow-up in sixty-two cases. J Hand Surg A 1984; 9: 901 – 904.
7. Epstein E. A simple technique for managing digital mucous cyst. Arch Dermatol 1979; 115: 1315 – 1316.
8. Gross RE. Recurring myxomatous, cutaneous cysts of the fingers and toes. Surg Gynecol Obstet 1937; 65: 289 – 302.
9. Huerter CJ, Wheeland RG, Bailin PL, Ratz JL. Treatment of digital myxoid cysts with carbon dioxide laser vaporization. J Dermatol Surg Oncol 1987; 13: 723 – 727.