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The use of electrodesiccation in the treatment of cutaneous neurofibromatosis: A retrospective patient satisfaction outcome assessment

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KEYWORDS

Electrodesiccation;
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Cutaneous lesions;
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Summary *Introduction:* Neurofibromatosis I (NF-1) is an autosomal dominant disease giving rise to hundreds of cutaneous neurofibromas. In addition to localised symptoms such as pain and pruritus, these lesions can have a devastating psychosocial impact. To date, there is no consensus on the optimal management of these lesions. We present the clinical and patient-reported outcomes of a series of NF-1 patients treated with electrodesiccation by one surgeon. *Methods:* All patients treated by electrodesiccation for cutaneous neurofibromas between 2012 and 2015 by one clinician were retrospectively reviewed. Clinical and patient-reported outcomes were measured using a patient satisfaction questionnaire and review of the notes. *Results:* Six patients were operated on during the study period (five women and one man). Prior to this new technique, patients had on average eight episodes (range 4–20) of excisional procedures under local anaesthesia removing one to five lesions. With electrodesiccation, patients had on average three (range 1–5) electrodesiccation episodes under general anaesthesia, treating hundreds of lesions per session. All patients were treated as a day case. One patient experienced a minor wound infection and another minor bleeding. Five of six patients preferred electrodesiccation to surgical excision.

Conclusion: Electrodesiccation enables the treatment of hundreds of neurofibromas in a single operation. The procedure has low complication rates with high levels of clinical and patient-reported outcomes.

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Introduction

Neurofibromatosis I (NF1) is an autosomal dominant disease seen in approximately one in 2600 to one in 3000 live births.^{1–4} Aside from the numerous sequelae that patients are prone to develop, namely optic glioma, intracranial tumours, kyphoscoliosis, tibial bowing, language and learning delay, hypertension, leukaemia and sarcoma, patients can present with multiple cutaneous lesions often numbering in hundreds.^{5–7} Cutaneous neurofibromas are benign connective tissue tumours arising from cells in the peripheral nerve sheath that frequently affects readily visible areas such as the face, neck and scalp.^{8–10} In addition to localised symptoms such as pain and pruritus, these lesions can have a devastating psychosocial impact, with removal providing immeasurable benefit to patients.^{11–14}

Although various treatment options for these cutaneous lesions have been described over the years, the mainstay of treatment has remained surgical excision and either primary closure or secondary intent healing of selective symptomatic lesions.^{15,16} Although a time-tested method that yields fairly predictable scarring, usually due to the time taken to treat multiple lesions, this forces patients to choose a small subset of their lesions to be removed at one time, thereby producing suboptimal satisfaction rates.

A short, time-saving and cost-effective removal technique allowing the treatment of many lesions, which poses little discomfort or functional impairment for the patient, would be desirable. Electrodesiccation is a form of electrosurgery involving tissue desiccation through dehydration and denaturation of the dermis. The technique has been increasingly used for a variety of skin conditions. Whilst relatively inexpensive and simple, patients have reported good cosmetic and functional outcomes with the procedure leading to an increase in its use for the management of cutaneous NF1 in recent years.¹⁷

We present a series of six patients with NF treated with electrodesiccation for cutaneous lesions at one centre by one clinician over 3 years. We present our clinical outcomes as well as patient satisfaction with the procedure measured using functional and cosmetic outcome scores via telephone questionnaire.

Methods

A retrospective review of six patients treated between 2012 and 2015 at the Chelsea and Westminster Hospital under the care of one clinician was conducted. Electrodesiccation was the first-line treatment for lesions of all sizes except those that were large and pedunculated, which were excised. However, the majority of lesions treated by electrodesiccation were small skin nodules. Clinical outcomes were evaluated using clinic letters and discussion with the lead clinician. Patient satisfaction and functional and cosmetic outcomes were measured using a telephone patient questionnaire.

Surgical technique

The surgical technique was almost identical in all cases. Other than the patch test that was performed under local anaesthesia, all procedures were performed under general anaesthesia on a day-case basis. Antibiotics were administered at induction of anaesthesia. Patient skin was prepared with aqueous chlorhexidine solution with two surgeons operating simultaneously when possible. Monopolar diathermy using a Megadyne fine-needle point was used on coag setting set usually between 10 and 15. Electrocautery was applied directly into the lesions causing destruction within a few seconds. Large long-established pedunculated lesions were excised at their bases and haemostasis was achieved. The wounds were covered with topical chloramphenicol ointment and patients given a course of post-operative antibiotics for 7 days. Patients continued to use the topical antimicrobial ointment for 7 days post-operatively (see [Figures 1–4](#)).

Results

Six patients (five women and one man) were treated with electrodesiccation between 2012 and 2015. The average patient age at the time of surgery was 49.6 years (range 27–70 years). All patients (6/6) responded to the telephone questionnaire.

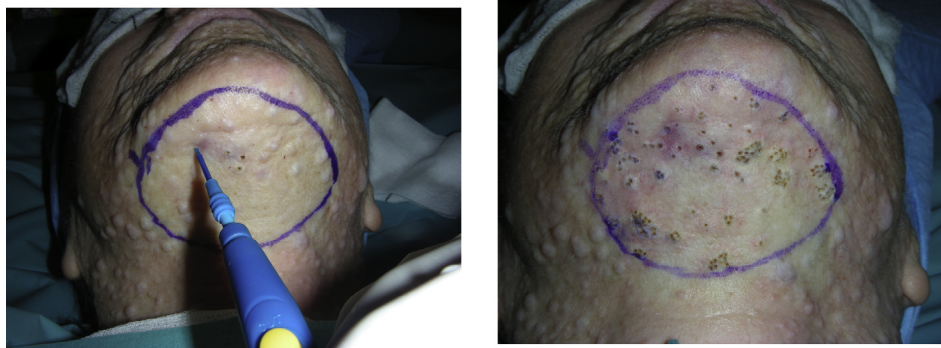


Figure 1 Intraoperative photograph showing the use of monopolar diathermy for electrodesiccation of cutaneous neurofibromas. Patch test is routinely performed in an obscure area to assess scarring prior to the treatment of larger areas and help educate patients about the technique.

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