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ORIGINAL

Functional Surgery for Malignant Subungual Tumors: A Case Series and Literature Review☆

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KEYWORDS
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Abstract
Background and objectives: Amputation is the conventional treatment for malignant subungual tumors (MSUTs), namely, subungual squamous cell carcinoma (SUSCC) and subungual melanoma (SUM). Functional surgery consisting of wide local excision (WLE) of the nail unit can preserve function without modifying prognosis in such cases. We present a series of MSUTs treated with WLE of the nail unit, describe the technique, and review its indications.
Material and methods: Retrospective observational study of MSUTs treated with WLE of the nail unit between 2008 and 2017. The technique consisted of en bloc supraperiosteal excision of the nail unit with a margin of 5 mm followed by repair with a full-thickness graft.
Results: Eleven MSUTs were treated in the study period: 7 SUMs (4 in situ; mean thickness, 1.17 mm; range, 0-4 mm) and 4 SUSCCs (mean thickness, 3.4 mm; range, 1.6-6 mm). WLE of the nail unit was performed in 9 patients and amputation in 2 patients with invasive SUM. Mean follow-up was 39 months (range, 12-96 months) and no local or regional recurrences were detected. One of the 2 patients who underwent amputation developed metastasis to the brain and died. In our review of the literature, we identified 5 series of patients with SUSCC treated with WLE of the nail unit (105 patients) and 14 series of patients with SUM (243 patients). Based on an analysis of these cases and ours, it would appear that WLE of the nail unit is associated with a very low rate of local recurrence (< 7%) and offers better functional and cosmetic outcomes than amputation.
Conclusions: WLE of the nail unit is the treatment of choice for SUSCC without bone involvement and for thin noninvasive SUM (Breslow depth < 1 mm). It is also feasible in intermediate-thickness SUMs when detailed histologic examination of the margins confirms complete resection. Amputation, by contrast, is the treatment of choice for SUSCCs with bone involvement, very thick SUMs (> 4 mm), and recurrent tumors.

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PALABRAS CLAVE
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Cirugía funcional

Cirugía funcional en tumores malignos subungueales. Serie de casos y revisión de la literatura

Resumen

Antecedentes y objetivos: El tratamiento clásico de los tumores malignos subungueales (TMSU), carcinoma epidermoide (CESU) y melanoma (MSU), es la amputación. La cirugía funcional del aparato ungueal (CFAU) puede preservar la función sin modificar el pronóstico. Presentamos nuestra serie de TMSU manejados con CFAU, describimos la técnica y revisamos sus indicaciones.

Material y métodos: Estudio observacional retrospectivo de TMSU tratados con CFAU entre 2008 y 2017, con exéresis supraperióstica en bloque del aparato ungueal, margen a 5 mm, y cierre con injerto de piel total.

Resultados: Se trataron 11 TMSU, de los cuales 7 fueron MSU (4 in situ, espesor medio: 1,17 mm; rango: 0-4 mm) y 4 CESU (espesor medio: 3,4 mm; rango: 1,6-6 mm). Se realizó CFAU en 9 casos y 2 amputaciones en sendos MSU invasivos. El seguimiento medio fue 39 meses, con un rango de 12-96 meses. No hubo recidivas locales ni regionales. Solo un caso —una de las 2 amputaciones—tuvo metástasis (cerebrales) y muerte.

La revisión de la literatura de CFAU en TMSU mostró 5 series (103 pacientes en total) con CESU y 14 series (243 pacientes en total) con MSU. El análisis de nuestros casos y de los casos publicados muestra muy escasas recurrencias locales (< 7%), y mejores resultados funcionales y estéticos frente a la amputación.

Conclusiones: La CFAU es de elección en CESU sin afectación ósea y MSU no invasivo o delgado (Breslow < 1 mm). Es factible en MSU de grosores intermedios siempre con detallado estudio histológico de márgenes que asegure una resección completa. Por el contrario, en CESU con afectación ósea, MSU muy grueso (>4 mm) o recurrencias, la amputación debe ser habitualmente de elección.

Introduction

Malignant subungual tumors (MSUTs), which largely comprise subungual squamous cell carcinoma (SUSCC) and subungual melanoma (SUM), are uncommon tumors in which early diagnosis and adequate surgical management are essential.[1] Traditionally, dermatologists used to refer patients with MSUTs to a traumatologist or plastic surgeon for more or less aggressive amputation.[2] While amputation achieves good local control, it leaves a considerable functional and cosmetic defect, particularly in the case of finger lesions. Just over 10 years ago, functional surgery consisting of wide local excision (WLE) of the nail unit emerged as an alternative to amputation.[3,4] This technique may offer effective control for noninvasive MSUTs and even for larger tumors without other poor prognostic factors.[5] WLE of the nail unit preserves the function of the distal phalanx and, compared with amputation, achieves better cosmetic outcomes[6] without modifying prognosis. In this study, we present a series of MSUTs treated with WLE of the nail unit at our hospital over a 10-year period (2008-2017), describe the surgical technique, and review its indications.

Material and Methods

Patients

We undertook a retrospective observational study of the surgical management of patients diagnosed with MSUTs at the Dermatology Department of Hospital General Universitario de Ciudad Real (HGUCR) in Ciudad Real, Spain over a period of 10 years (July 2008 to June 2017). We analyzed demographic, clinical, and histopathologic variables, disease stage at diagnosis, and outcomes (recurrence, metastasis, and death). A survey was designed to collect information on procedure-related complications not reflected in the patients' charts, postoperative sequelae, and level of patient satisfaction assessed on a Likert scale. The study was approved by the research committee at the HGUCR and complied with regulations governing the publication of patient data. Consent was obtained from all patients.

WLE of the Nail Unit: Surgical Technique (Figs. 1-3)

En bloc excision of the nail unit was performed using the procedure described below after confirmation of the diagnosis by biopsy.[3,7] The procedure is performed under a digital nerve block and hemostasis is achieved with a tourniquet. A margin of 5 mm is marked around the nail plate or, when the clinical lesion extends beyond the plate, around the lesion to ensure complete excision. Dermoscopy can help to define the extension of the lesion. Using a #15-blade scalpel, a vertical incision is made down to the periosteum, dissecting the subungual region including the entire nail plate, the lateral and proximal folds, the germinal matrix, and the nail bed. Deep dissection is performed at the level of the underlying periosteum, but the periosteum is spared