

Biology and Principles of Scar Management and Burn Reconstruction



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KEYWORDS

• Burn reconstruction • Laser • Heterotopic ossification • Fibrocytes • Scar

KEY POINTS

- Hypertrophic scarring is extremely common and is the source of most morbidity related to burns.
- The biology of hypertrophic healing is complex and poorly understood. Multiple host and injury factors contribute, but protracted healing of partial thickness injury is a common theme.
- Hypertrophic scarring and heterotopic ossification may share some basic causes involving marrow-derived cells.
- Several traditional clinical interventions exist to modify hypertrophic scar. All have limited efficacy.
- Laser interventions for scar modification show promise, but as yet do not provide a definitive solution. Their efficacy is only seen when used as part of a multimodality scar management program.

BASIC SCIENCE OF SCARS

Introduction

Hypertrophic scarring (HTS) is a common complication of burn injury that can be considered a fibroproliferative disorder (FPD) (Figs. 1 and 2).¹ Bombaro and colleagues² documented an incidence of HTS following burn injury of up to 80% in injured

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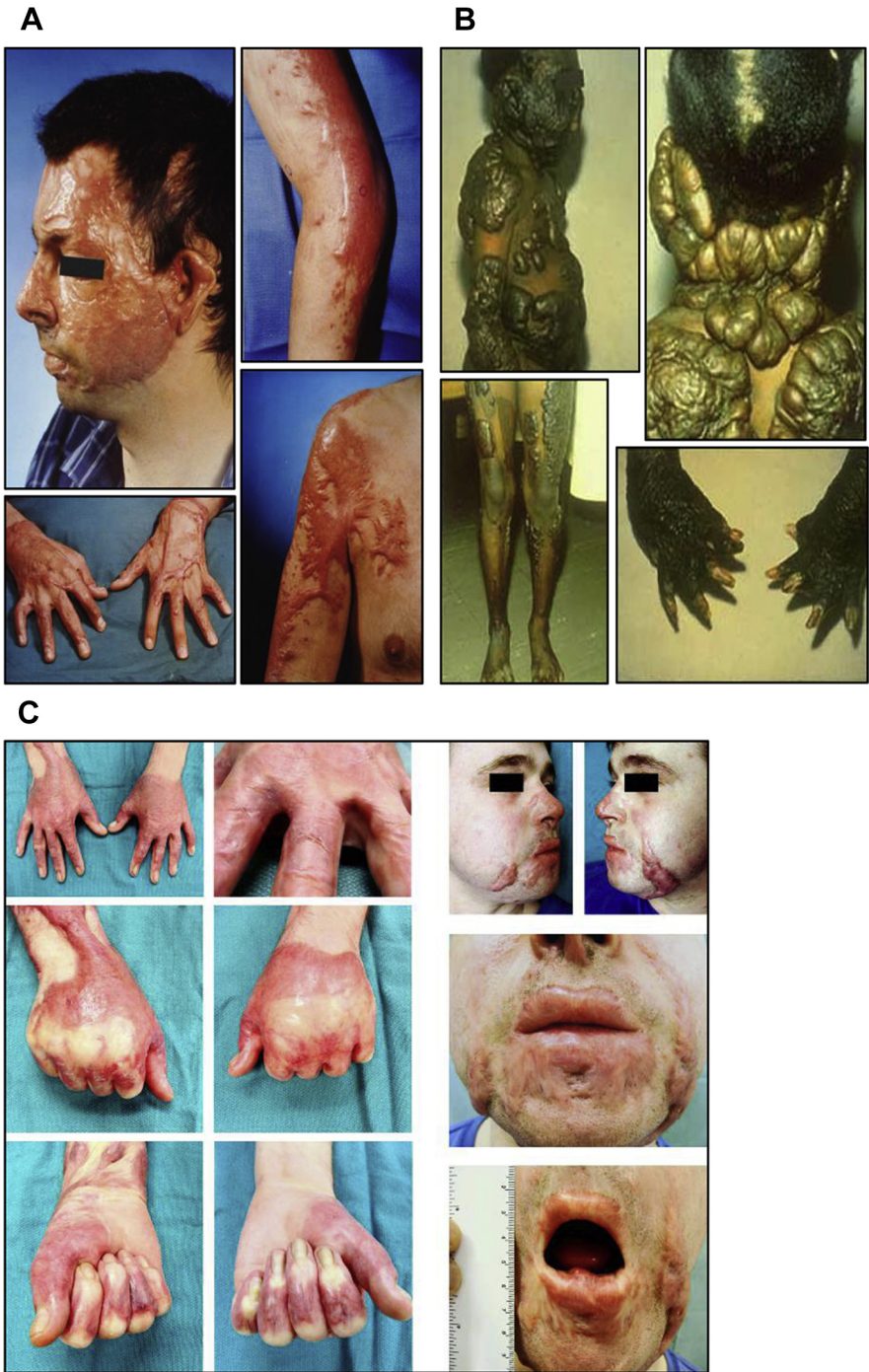


Fig. 1. (A) HTS developed on a 34-year-old Caucasian man 8 months after a burn involving 60% of his TBSA. (B) Keloids on a 12-year-old black child following a scald burn including donor sites on lower extremities. (C) A 24-year-old white man, 11 months after a 21% TBSA burn. This patient developed HTS, resulting in cosmetic and functional problems that included restricted opening of mouth and tight web spaces of fingers that limited range of motion on hands.

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