Dosimetric Characteristics of Superficial X-Ray Therapy(SRT) and Precautions in its Clinical Application

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Introduction:

Keloids are challenging fibroproliferative disorders with high recurrence rates after surgical excision. Superficial X-ray radiotherapy (SRT) has emerged as an effective adjuvant therapy to prevent recurrence. This presentation outlines the key aspects of SRT, including its scientific basis, dosimetry, clinical workflow, Clinical casesand safety protocols.

Key Content:

1. Schematic Diagram of Skin Structure

Visual overview of skin layers, highlighting the depth of keloid formation and SRT's targeted penetration.

2. Dosimetry Characteristics of Superficial X-rays

Energy range (e.g., 50 - 100 kv), depth-dose distribution, and optimal dosing (typically 12 - 20 Gy in fractionated regimens).

3. Treatment Process of SXRT

Step-by-step workflow: post-excision timing, field delineation, shielding techniques, and fractionation schedules.

4. Precautions for Clinical Application

Radiation safety measures (e.g., thyroid/eye shielding), contraindications (pregnancy, pediatric cases), and managing acute side effects (erythema, hyperpigmentation).

5. Clinical Cases

Demonstrative cases showing efficacy in reducing recurrence, with pre-/post-treatment images and long-term follow-up.

Conclusion:

Superficial radiotherapy is the optimal modality for preventing keloid recurrence post-surgery. Success depends on clinicians' understanding of dosimetry principles, tailored treatment planning, stringent radiation protection, and patient-centered safety protocols. SRT offers a balance of efficacy and tolerability when applied judiciously.