

STANDARD KELOID SURGICAL TREATMENT AT OUR DEPARTMENT: COUSE OF TREATMENT AND THE RESULT

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Running Title

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BACKGROUND

In surgical treatment of keloids, recurrence after excision is a major problem and a barrier to treatment. As a regional hospital, our institution established a specialized keloids outpatient unit in 2013 and has provided systematic keloid treatment. Depending on the condition of keloid lesion, we offer surgical treatment combining with radiation therapy alongside conservative treatment, while conducting long-term follow-up whenever possible. A retrospectively analysis of these cases allows us to identify characteristics of recurrent cases, determine the minimum necessary follow-up periods, and evaluate the effectiveness of our systematic treatment approach.

METHODS

We retrospectively reviewed the medical records for keloid cases surgically treated at our department over a 12-year period, from June 2013 to December 2025. Cases were classified by patient age, sex, and keloid location. Treatment method included simple excision as well as flap surgery or skin grafting. The postoperative radiation therapy protocol involved defining the irradiation field to include the wound site plus a 1cm margin. For auricle lesion, the dose was 4 Gy×4 fractions(every other day), while for other sites, the dose was 4 Gy×5 fractions(every other day).

Recurrent cases were identified from the surgical cohort, and their post-recurrence clinical course was analyzed.

RESULTS

Among the 630 cases treated at our department, 128 keloid cases underwent surgical treatment. After excluding 8cases lost to follow-up after suture removal, the follow-up periods ranged from 1 month to 126 months (10.5years) postoperatively.

The cohort included 85 female and 43 male patients. The highest age distribution was in patients in their 20s (32.8%), followed by approximately equal populations in their 30s, 40s, 50s, and 60s (each around 15%).

Keloid locations were distributed as follows: auricle (30%), chest (20%), abdomen(15%), umbilicus(16%), upper arm (4.6%), face (4.6%), other trunk areas (3%), scapular region (2%), and lower limbs (2%). Postoperative radiation therapy was administered in 96% of cases. Oral tranilast (an antiallergic drug) was prescribed in 90% of cases, with 14.6%

discontinuing due to pregnancy or side effects. Treatment was discontinued immediately upon the occurrence of adverse effects.

Recurrence was observed in 23% of cases. Occurring between 4 months and 36 months postoperatively. Kaplan-Meier analysis showed recurrence-free rates of 77.6% at 1 year, 69.2% at 2 years, and 63.2% at 3 years. 90% recurrence occurred within 48 months postoperatively.

Except for one case, all recurrent cases were treated with local corticosteroid injections and corticosteroid tape application. The follow-up period after recurrence ranged from 9 months to 114 months.

Clinical symptoms at final evaluation were assessed using the JSW (Japan Scar Workshop) scar scale, which evaluates five parameters: induration, erythema, infiltration, and pain, and itching. A total score of 0 points was defined as excellent, 1-2 points as good, 3-8 points as fair, and 9-18 points as poor. Overall, 76% of cases were rated as good or excellent, while 24% were rated as fair or poor.

CONCLUSION

In this study, surgical treatment for keloids was selected for cases with resectable lesions and generally limited to patients for whom combination therapy with radiation and long-term follow-up were feasible.

Recurrence occurred between 4 month and 36 months postoperatively, with 90 % of recurrences occurring within 48 months. No recurrences were observed beyond 36 months. Based on these findings, a follow-up period of least 2 years--and preferably 3 years or more--is recommended for adequate recurrence assessment.

At our institution, radiation therapy and oral tranilast were frequently used ; however, their individual contributions could not be clearly determined in this study.

Following recurrence, favorable outcomes were achieved in 76% of cases using local corticosteroid injections and corticosteroid tape application. In contrast, four cases had poor outcomes, all involving multiple keloids with early onset. These cases required prolonged treatment despite combination therapy, suggesting great treatment difficulty.