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SHORT COMMUNICATION

Recurrent Keratoacanthomas Developing after Spontaneous Resolution

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Keratoacanthoma (KA) is a type of squamous proliferative lesion that usually regresses. KAs may be a form of low-grade squamous cell carcinoma (SCC) (1) or a benign squamous proliferation (2, 3) that rarely evolves into invasive SCC. The standard procedure for KAs is usually surgical treatment rather than monitoring for spontaneous regression (4).

However, the conservative approach for treating KAs, may be selected (5, 6). A previous clinical study has reported no recurrence of KA following spontaneous regression (5). Only one report of possible KA (reported as "molluscum sebaceum") recorded the exceedingly rare recurrence of the lesion undergoing spontaneous regression (7). We describe here 2 cases that demonstrated the development of a recurrent KA neighbouring either a regressing or a regressed KA lesion when monitoring the primary lesion.

CASE REPORTS

Case 1. A 46-year-old man presented with a 4-week history of a rapidly enlarging lesion on the front of his left auricle. Physical examination revealed a skin-coloured nodule, 14 mm in diameter, with a large, cutaneous horn-like, central keratin plug on the front of his left auricle (Fig. 1A). A diagnosis of KA was made based on the clinical features and the histopathological features of an incisional biopsy. The patient chose a "watch and wait" approach for the lesion. The lesion showed a reduction in size at 4 weeks after the initial examination. The lesion clearly flattened to become a keratotic plaque at 8 weeks (Fig. 1B). However, there was no remarkable change in the keratotic plaque at 12 weeks; instead, a skin-coloured to pink dome-shaped nodule, 13 mm in diameter, with a partial keratotic plug rapidly appeared at the lateral margin of the primary lesion (Fig. 1C). A newly developed nodule along with the original regressing KA was completely removed, including the underlying cartilage, and a skin graft was performed. No evidence of recurrence was observed in the subsequent one year.

The histopathological features of the newly developed nodule revealed features of KA in the early/proliferative stage with a cystic appearance (Fig. 1D). A diagnosis in the original lesion of KA in the regressing stage was confirmed based on the lesion's histopathological features (6, 8). The lesion was characterized by 2 keratin-filled, shallow cup-shaped structures rimmed by epidermal hyperplasia associated with dermal inflammation and fibrosis (Fig. 1E).

Case 2. An 84-year-old woman presented with a few-week history of a rapidly enlarging lesion on the right side of the back of her neck. She was seen by a practicing dermatologist, who made a clinical diagnosis of KA for her lesion. The conservative approach was selected for the lesion, which resulted in a spontaneous complete regression of the lesion in a few months. However, one month after this regression, she noticed a rapidly enlarging recurrent lesion near the site where the primary lesion had been. She was referred to our clinic for treatment of the recurrent lesion. Physical examination revealed a dome-shaped, skin-coloured to pink nodule, 12 mm in diameter, near a depressed crater-like scar, 11 mm in diameter, demonstrating the "moon crater sign" (9) of healed KA on the right back of her neck (Fig. 2A). A newly developed nodule along with crater-like scar was completely removed. No evidence of recurrence has been observed in the subsequent 3 years.

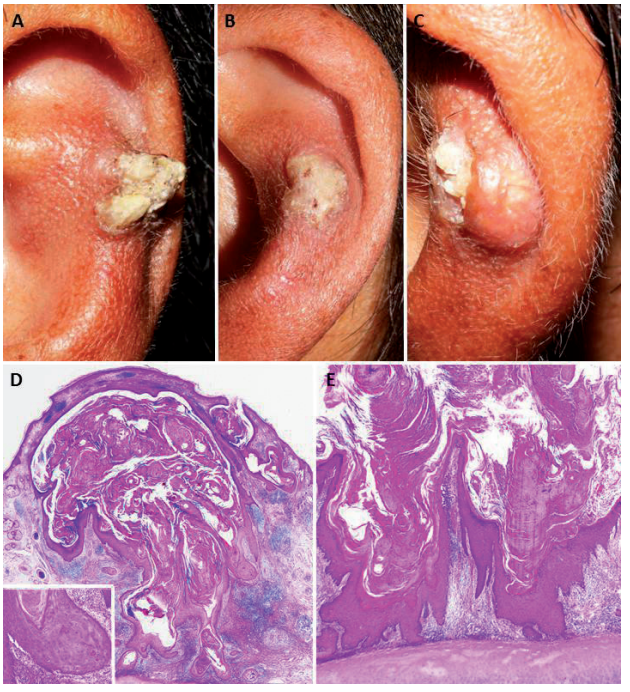

Fig. 1. Case 1. (A) Initial appearance showing a fully developed keratoacanthoma (KA) on the front of the patient's left auricle. (B) A regressing KA at 8 weeks after the initial appearance. (C) A recurrent (new) KA neighbouring the regressing lesion at 12 weeks after the initial appearance. (D) A recurrent lesion showing the features of an early/proliferative stage KA with a cystic appearance. The inset shows a neoplastic lobule with large, pale pink cells. (E) A regressing lesion. (H&E: D × 3, inset × 40; E × 6).

The histopathological features of the newly developed nodule revealed features of KA in the early/proliferative stage with a cystic appearance (Fig. 2B). The histopathological features of the crater-like scar showed the typical features for regressed KA (10): a depressed epidermal lesion with overhanging or rising edges, and the epidermis was variably acanthotic and there was a loss of rete pegs (Fig. 2C).

DISCUSSION

Recurrence of KA is rarely seen after either a complete removal or Mohs micrographic surgery (11, 12). The

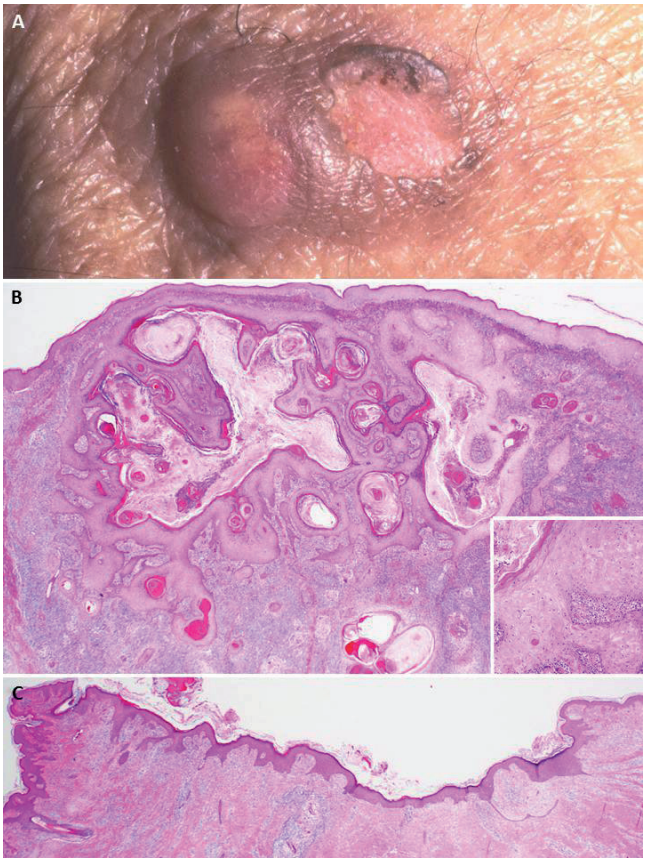

Fig. 2. Case 2. (A) A dome-shaped nodule, a recurrent (new) keratoacanthoma (KA), neighbouring the depressed, crater-like scar, demonstrating the "moon crater sign" of regressed KA on the right back of the patient's neck. (B) A recurrent lesion showing the features of an early/proliferative stage KA with a cystic appearance. The inset shows the neoplastic lobules with large, pale pink cells. (C) A crater-like scar lesion showing a regressed KA. (Haematoxylin-eosin: B ×5, inset ×50; C ×5).

development of KAs in postoperative healing wounds or surgical scars after removal of skin cancer other than KA, including basal cell carcinoma, melanoma, and conventional SCC, has also been reported (13). Therefore, most "recurrences" of KA are considered to represent a reactive process in the proliferation phase rather than neoplastic changes or remnants of the neoplastic cells (5, 12, 13). In fact, the development of KAs has been reported to occur at sites of various types of trauma, including thorn injuries, dog scratches, tattoos and burn scars (10, 14, 15).

The 2 cases presented here showed development of "new" KAs neighbouring regressing and regressed KAs, respectively. No obvious trauma was seen before the development of KA in either case. Recurrent (new) KAs developed at the periphery of a regressing KA in case 1, at the margin of the scar area (completely regressed KA) in case 2, and in one previously reported case (7). The latter 2 recurrent lesions occurred 1–2 months after the original KAs had completely regressed.

It is interesting to note that the recurrent KAs in both cases showed a cystic appearance. The proliferative signal may have switched in a remnant of the infundibular cyst focus, which resulted in the cystic appearance.

KAs undergo 3 stages in their natural history: an early/proliferative stage, a fully developed stage and an involutional (regressing/regressed) stage (1, 4). Based on the presented 2 cases, there may be an under-recognized fourth stage: a recurrent (renewal) stage in the natural history of KAs. Recognizing this fourth stage is biologically interesting but may not have much significance in clinical practice, because if a new lesion develops near a regressing KA, it is usually excised to rule out SCC.

The authors declare no conflicts of interest.

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