A Case of Inverted Follicular Keratosis

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I report a case of inverted follicular keratosis in a 68-year-old woman who presented a solitary, asymptomatic, slightly brownish verrucous nodule on her nose, present for 3 years. The lesion was characterized histologically by focal hyperkeratosis, marked acanthosis, horn cysts, numerous squamous eddies and sebaceous differentiation of the basaloid cells in the epidermis. (Ann Dermatol 4 : (1) 41–44, 1992)

Key Words: Inverted follicular keratosis, Squamous eddy, Sebaceous differentiation.

Inverted follicular keratosis (IFK) was first described by Helwig in 1954. Clinically, this lesion occurs most commonly on the face of elderly people as an asymptomatic, firm, verrucous lesions. Microscopically, there is an endophytic or exo-endophytic lesion which shows dyskeratosis (squamous eddy), acanthosis, and acantholysis in the epidermis. It may be related to, or a variant of, seborrheic keratosis, or it may be a reactive phenomenon related to pseudoepitheliomatosus hyperplasia, or it may be an independent lesion. Some authors have suggested that is nothing more than verrucae vulgares with squamous eddies. Herein, I will describe a recent case of IFK which showed typical histologic findings.

REPORT OF A CASE

A 68-year-old woman visited this hospital with a solitary, slightly brownish verrucous nodule on her nose which had been present for 3 years. She had been healthy except for the skin lesion, which had been growing slowly, and denied any previous trauma history at the site of the lesion. She did not feel any subjective symptoms. On physical examination, a 6 × 6 × 3 mm sized, round, elevated, somewhat verrucous, well demarked nodule was seen on her nose. The patient’s past and family history were not contributory. At first, I thought it was verruca vulgaris and performed a shave biopsy and electrodessication.

Microscopically, the overall configuration was a well-localized exophytic lesion. In the epidermis, focal hyperkeratosis, marked acanthosis, horn cysts and numerous foci of keratinization (squamous eddies) were present in the papillomatous lesion (Fig. 1, 2). In the lower part of epithelium, the mass had numerous basaloid cells with foci of sebaceous differentiation (Fig. 3). In the dermis, there were numerous dilated tortuous capillaries, but inflammatory cells were scarce (Fig. 1).

DISCUSSION

Inverted follicular keratosis is an asymptomatic, firm, verrucous lesion and is
Fig. 1. Marked acanthosis and squamous eddies are present in the epidermis. In the dermis, dilated tortuous capillaries are seen.

Fig. 2. Horn cyst and squamous eddies are present in the epidermis.

usually 2~10mm in size. In 86~90% of the cases, the lesions are situated on the head and neck. Most of the patients are older than 40 years, but several teenagers were included in the reports. Duration of the lesions in Mehregan’s series varied from 6 to 8 weeks to several years. Verruca vulgaris, basal cell epithelioma, and seborrheic verruca were the most common clinical diagnosis. It occurs more often in men than in women.

Histologically, it is a well-localized, expansile lesion, and is not only endophytic but also exophytic. Its surface is elevated and often papillary. The epidermis shows parakeratosis, focal hyperkeratosis, acanthosis, and a variable thickness of the granular layer. Hypertrophied melanocytes are features of several of the cases. Characteristically, acantholysis and squamous eddy formation are seen. In some cases, in their deep portion, there are columns which are composed of small, dark, basaloid cells with focal area of sebaceous differentiation. Inflammation is seldom a prominent feature in the dermis. Mehregan divided the IFK histologically into 3 growth patterns: keratoacanthoma-like lesions, filiform or wart-like lesions, and solid and nodular lesions. In my case, histologically, it showed focal hyperkeratosis, marked acanthosis, horn cysts, numerous squamous eddies and sebaceous differentiation in the epidermis and dilated capillaries with scarce inflammatory cells in the dermis.

Helwig, in his original description, did not
discuss the pathogenesis of IFK. Boniuk and Zimmerman proposed the possibility of a viral etiology. In 1964, Mehregan described that the infundibular portion of the follicle (acrotrichium) was primarily involved in the process. After that report, several authors agreed with Mehregan’s description. But Headington suggested that the idea of the acrotrichium was a conceptual invention and the acro-trichium was neither a biologic nor a morphologic entity, and that IFK was unlikely to be follicular. Lever described that the histologic picture of squamous eddies was seen with regularity in only two conditions: IFK and irritated seborrhieic keratosis. That would appear to be sufficient reason to regard these two conditions as being identical. But many authors disagreed with Lever’s conclusion because the pattern of squamous eddies is not found in any single pathologic entity. Ackerman and Wade suggested that when warts on the face began to regress, it was not uncommon for them to be associated with eddies of squamous cells, and that there might even be eccrine or sebaceous differentiation in such warts. And Ackerman suggested that because the epithelia of vellus follicles on the face were involved by the viral infection, squamous eddies were common in warts and were a nonspecific feature. Furthermore, the fact that 8% of cases of tricho-lemmomas occur in organoid nevi cast doubt on the hypothesis of viral origin. Reed and Pulitzer described that the common wart did not affect hair follicles, nor did it induce follicular neogenesis. Mehregan suggested that squamous eddies were practically never present in verruca vulgaris, and disagreed with Ackerman’s implication that electron microscopy (EM) had not found any evidence of infection by wart virus. Penneys et al did not prove the presence of viral antigens or particles in tricho-lemmoma using EM and immunoperoxidase techniques. Further investigation using DNA hybridization techniques or other methods for demonstrating the papova virus in old verruca may provide to this controversial issue.

The most important point, however, is that almost all authors agreed that it’s a benign lesion.

In conclusion, I question why IFK usually develops on the face, and why the incidence of IFK is so rare in comparison with those of verruca. Thus, I agree with Moelenbeck’s statement, “Even if EM, inoculation experiments, and monoclonal antibodies were to prove that IFK and tricho-lemmomas are caused by virus, it would still be useful to conceive of them as distinct from common verrucae.”

REFERENCES
