Penile Cancer Associated with an Artificial Penile Nodule

Sir,

Carcinoma of the penis most often occurs in elderly, uncircumcised men. In general, lack of circumcision, poor genital hygiene, phimosis and chronic exposure to chemical irritants (smegma) may predispose a man to the development of penile cancer (1). The embedding of one or more beads, usually into the dorsum of the penis, for the purpose of increasing coital excitation and orgasm of the mate is not a rare procedure in many countries; it is usually performed by unqualified personnel in prisons, and in Japan, especially in Yakuza (gangster) society. This paper presents a case of penile cancer arising from an artificial nodule.

A 46-year-old Japanese man presented with a 3-month history of an eroded lesion on the shaft of the penis. Twenty-three years earlier, he had been circumcised, and two pearls had then been implanted into the lateral aspect of the penis. However, they were removed one and a half year later. Another 2 years later, two beads made from a plastic tooth brush were inserted into the same sites, and remained there for the following 20 years without any symptoms. There was no interference with urination, erection, intercourse or the ejaculation of semen. One year before the patient's first visit to our department in May 1991, a red papule had appeared on the skin at the site of one of the two implanted beads, and gradually enlarged, accompanied by a pruritic erythema. Three months before the first visit, the center of the lesion was eroded and was painful to touch.

Fig. 1. Eroded lesion with a slightly elevated border on the right aspect of the shaft of the penis.

Examination revealed an eroded lesion measuring 29 × 15 mm, with a slightly elevated border, and located on the right aspect of the penis shaft near the coronary sulcus (Fig. 1). Beneath the lesion was a hard peanut-sized nodule, which moved against both the underlying tissue and the overlying lesion. Another hard subcutaneous nodule of the same size was found on the opposite side of the penis. Inguinal lymphadenopathy was not detected. Laboratory investigation showed no abnormalities. An incisional biopsy of the border of the lesion revealed a squamous cell carcinoma that extended into the dermis. The patient was admitted to our hospital for the surgical management of his disease. The lesion and the underlying embedded material were removed, and the wound was simply sutured. At the same time, biopsies of the superficial inguinal lymph nodes were performed bilaterally. Histology showed a moderately well differentiated invasive squamous cell carcinoma. The nuclei were large, hyperchromatic and pleomorphic, and many examples of focal dyskeratosis and keratin pearls were seen in the tumor mass. Human papillomavirus (HPV) was not detected in the lesion by immunohistochemical staining or *in situ* hybridization. The lymph nodes were negative for malignancy.

Cases of malignancy induced or caused by foreign bodies have rarely been reported in medical literature but include a case of pulmonary squamous cell carcinoma induced by a bullet (2), and one of squamous cell carcinoma of the bladder associated with intrapelvic pieces of shrapnel (3). However, to the best of our knowledge, no case of penile cancer developed over an artificial penile nodule has been reported. The mechanism by which foreign bodies produce tumors is unclear but may be associated with the chronic irritation and hyperplasia induced by the foreign body. One substance recently suspected of carcinogenicity is the styrene widely used in the manufacture of plastics, because it has a molecular structure similar to that of vinyl

chloride (4). Another is acrylonitrile, used as a degenerative agent in the production of plastics, which was revealed to be carcinogenic in both experimental and epidemiological investigations (5).

HPVs induce various warty tumors in the skin and mucosa of the respiratory and genitourinary tracts. A possible viral etiology of human genital cancers has been discussed, and the accumulated data have pointed strongly to HPV as the causative agent. In our case, no HPV was demonstrated by either immunohistochemical or *in situ* hybridization techniques.

In view of our patient's late circumcision, the chronic local irritation by the artificial penile nodule, and the chemical carcinogens such as styrene and acrylonitrile used in the plastic foreign body, we believe that it may have been complex carcinogenic stimulation that led to the occurrence of the penile carcinoma.

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