Carcinoma of the scrotum associated with rubber urinals. Case report

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A paraplegic patient, who had worn a rubber urinal in close contact with the scrotum for over 40 years, developed carcinoma of the scrotum. It is likely that this is a previously unsuspected example of chemical carcinogenesis, and in view of this, we believe that the use of rubber urinals should be discontinued.

Keywords: paraplegia; rubber urinal; carcinoma of scrotum.

Case report

A 22 year old man sustained shrapnel wounds in 1944, resulting in fractures of the first and second lumbar vertebrae and a complete paraplegia below L4. Urinary drainage via a suprapubic catheter was instituted, and continued until 1947, when a urethral fistula was repaired. He subsequently emptied his bladder by expression but recurrence of the fistula and the presence of a urethral stricture necessitated a further suprapubic cystostomy in 1957 and this has remained the method of bladder drainage. Ever since 1944 he had worn a rubber 'kipper' urinal, which he attached to his upper thigh. He stated that the urinal often rode up the thigh, and in the sitting position was actually in contact with the skin of the scrotum.

He first noticed an ulcer at the base of the penis in January 1986, but presented 2 months later with an advanced carcinoma of the upper left scrotum extending into the base of the penis, and with palpable left inguinal lymph nodes. Biopsy confirmed a diagnosis of a squamous cell carcinoma. He proceeded to have a course of external beam radiotherapy to the tumour and left groin, given as a split course in conjunction with Mitomycin C and two 5-day infusions of 5-fluorouracil. As the tumour showed a good but incomplete response to treatment, an iridium wire implant was performed in June 1986. Three months later, due to the

presence of persistent tumour which was now operable, excision of the scrotal tumour and amputation of the penis was performed. He has remained well for 7 years with no sign of recurrence.

Discussion

The association between prolonged irritation of the scrotum by industrial agents such as soot, creosote and mineral oils and scrotal cancer is well known.^{1,2,3} Cancer of the scrotum was thought to have developed in Persian nomads because they transported a pot of burning charcoal under their skirt-like garments as they travelled,⁴ otherwise the disease is thought to be practically nonexistent in nonindustrialised rural areas.⁵

Bladder cancer has been associated with long exposure to rubber antioxidants derived from beta-naphthylamine, which was used in the rubber industry until 1950,⁶ but we have been unable to trace a case report implicating prolonged direct contact with rubber as a cause of scrotal carcinoma. It is not known why the scrotum remains susceptible to environmental carcinogens, but we suggest that in this patient, prolonged contact of the scrotum with a rubber urinal was the cause of his scrotal cancer.

A significant number of patients, mainly those who have been paraplegic for many years, continue to use a rubber urinal, and

refuse to convert to a more modern plastic urinary drainage bag, usually stating as the main reason that the rubber urinal has a greater capacity and is therefore more convenient. However, in view of this case

report, it would seem unwise to continue this practice, as the rubber urinal appears to be yet another example of a chemical carcinogen causing carcinoma of the scrotum.

References

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