

## GAMEKEEPER'S THUMB

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The articulation between the metacarpal and the proximal phalanx of the thumb is a hinge-like joint which depends for stability on the capsule reinforced by the extensor expansion, palmar accessory and collateral ligaments. It is the collateral ligaments which determine lateral stability in extension, and ligamentous insufficiency on the ulnar side as a result of injury causes impairment of the pincer action between thumb and forefinger (Watson-Jones 1943). It is the purpose of this article to show that a similar ligamentous insufficiency may exist in the absence of trauma in gamekeepers engaged in the killing of rabbits; and that the condition is so common amongst gamekeepers as to constitute an occupational characteristic.

**Mechanism**—The gamekeeper's method of killing a wounded rabbit is to hold the head in one hand and the buttocks (or rear legs) in the other. A strong pull is then exerted while the neck is sharply extended in the thumb-forefinger cleft. The strain of this manoeuvre should be taken in the cleft; but almost invariably a loose grip causes the neck to be stretched



FIG. 1



FIG. 2

A gamekeeper's method of killing a rabbit by stretching and hyperextending the neck. The photograph on the right shows the method of gripping the neck in the thumb-forefinger cleft.

against the ulnar side of the thumb. It is the force of this pull, repeated manyfold, which stretches the collateral ligament (Figs. 1 and 2).

In the twenty-four gamekeepers examined, only four failed to show laxity of the metacarpo-phalangeal ligament on the ulnar side. The hand which held the rabbit's head was invariably the one affected. In this respect fifteen right and three left thumbs showed the deformity. The remaining two men, with lesions of both thumbs, were found to be ambidexterous. Of the four gamekeepers unaffected, one did no rabbit killing, one used a

different method and a third showed osteoarthritis of the first metacarpo-phalangeal joint in both hands. The fourth held the head of the rabbit well into the thumb-forefinger cleft. He alone used the manoeuvre described in the approved manner.

**Pathology**—The pathological anatomy of the condition resembles traumatic rupture of the collateral ligament when healing occurs with lengthening. Two forms are encountered. In the first, the ligament is lengthened by repeated stretching which allows the phalanx to tilt on the metacarpal when radial stress is applied (Fig. 3). The second type occurs as a



FIG. 3



FIG. 4

Figure 3—Tilting of the proximal phalanx on the metacarpal head permitted by laxity of the medial ligament. Figure 4—Continued pressure causes the tilted phalanx to slide laterally.

sequel to the first when continued pressure, brought to bear on the already lengthened ligament, causes the phalanx to slide over the metacarpal head. Both tilt and slide are thus present on application of the causative force (Fig. 4).

**Clinical features**—The severity of individual lesions was found to be directly related to the amount of rabbit killing undertaken by the gamekeeper. Symptoms, however, were not related to clinical signs. In this series a third of the patients complained of weakness of the thumb-forefinger grip and an ache in the metacarpo-phalangeal joint. The remaining two-thirds were unaware of an abnormality.

It is evident that there are other occupations in which a similar strain constantly applied to the inner side of the thumb could cause a comparable ligamentous laxity. For example, anaesthetists who maintain the face mask in position by hand do so with the collateral ligament on the ulnar side on stretch. A degree of ligamentous laxity has been noted in such circumstances. In general, however, the condition is so characteristic that a recent patient who denied being a gamekeeper later admitted an extensive interest in the poaching of rabbits.

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#### REFERENCE

WATSON-JONES, R. (1943): *Fractures and Joint Injuries*. Third edition, p. 587. Edinburgh: E. & S. Livingstone Ltd.