

MISCELLANEA

BEAT SHOULDER

Description of A Beat Disorder Occurring in Bantu Miners in the Republic of South Africa

BY

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In 1924 Collis and Llewellyn first described the "Beats". These conditions were so called by the coal-miners themselves. The "beats" occur in three forms:

1. Beat hand: a subcutaneous cellulitis of the hand.
2. Beat knee: a subcutaneous cellulitis or acute bursitis arising at or about the knee.
3. Beat elbow: a subcutaneous cellulitis or acute bursitis arising at or about the elbow.

Little has been written about the "beats" despite the fact that they are included in the list of "Prescribed Diseases" in Great Britain, where injury benefit is payable to those who develop the disorder.

Aetiology

The cellulitis condition is caused by grit being rubbed into the affected part, and poor hygiene plays a part in its development. The grit is rubbed into the skin, impregnates the area, and eventually results in infection which seems, in the cases I have seen, to affect the hair follicles rather than minute abrasions. Acute bursitis results from local trauma.

Collis and Llewellyn (1924) stressed the importance of the infective element in beat knee. Atkins and Marks (1952) believed systemic infection to be an important factor in causation. Watkins, Hunt, Fernandez, and Edmonds (1958) found no evidence of infection in 70% of their 899 cases of beat knee; they attributed this to the use of knee pads and to bathing facilities. The accepted broad clinical classification of beat knee into subcutaneous cellulitis and acute bursitis was described by Collis and Llewellyn (1924), Watkins (1951), Atkins and Marks (1952), and Watkins and Hunt (1954). Fernandez (1958) described a treatment régime consisting of scrubbing the knee, quadriceps exercises in a right-angled position, use of a large mine dressing for kneeling, and a high dosage of ultraviolet light to the front of the knee; he allowed kneeling at work to continue under this treatment.

Beat Shoulder

The present paper reports cases of another beat disorder, beat shoulder. Chronic bursitis around the

shoulder joint, which is subject to inflammatory episodes, was described in association with the use of drilling machines by Hunt, Edmonds, and Fernandez (1954).

A tattooing effect was noticed on the shoulders of Bantu coal-miners, whose job it was to push tubs from the coal-face, and interest was aroused when a Bantu miner was seen at sick parade complaining of a discharging abscess of the right shoulder. On examination there was an area of deep pigmentation over the body of the right deltoid muscle, about two square inches in area. On this pigmented area were five small excrescences, probably due to infected hair follicles. One of these was discharging thick, yellow pus. The patient stated that he had been working underground for four months, and that it was his practice to push the loaded tubs by applying his right shoulder to the tub. His personal hygiene was not good.

He was admitted to hospital for treatment, and at the same time a biopsy was taken of one of the excrescences for histological examination. The patient was treated with antibiotics and hot fomentations, and he returned to work after 10 days. The affected area was still deeply pigmented but less coarse in appearance than when he was first seen. Biopsy showed evidence of subcutaneous cellulitis as well as impregnation of grit, probably coal.

Figs. 1 to 3 show photographs of an early and an advanced case.

Prevalence of Beat Shoulder

Three groups of Bantu coal-miners were observed.

1. *Recruits*: Bantu who were to be employed in this mine, for the first time or not.

2. *Discharges*: Bantu workers who were returning home after working in any capacity in the mine.

3. Bantu workers who attended the daily sick parade. It was found convenient to classify these miners into three ethnological groups, since it was found that the Bantu recruited from Mozambique rarely pushed tubs underground in the mine. The Basuto miner on the other hand was frequently employed in this way, as were also the Bantu from the Republic of South Africa itself.

After one month the following figures were obtained (Table 1a and b).

Of the sick parade cases, seven showed signs of infection, six of these being Basuto miners. No patient attended sick parade because of beat shoulder.

Of the discharges, four had infected shoulders; only one of these was from the Republic of South Africa. Among the recruits with beat shoulder, four Basutos and one South African were returning to work after an absence of one month or less. Another had not worked for over eight months, yet he showed definite pigmentation and thickening of the skin over the right shoulder.



FIG. 1.—Beat shoulder; an early and a late case.

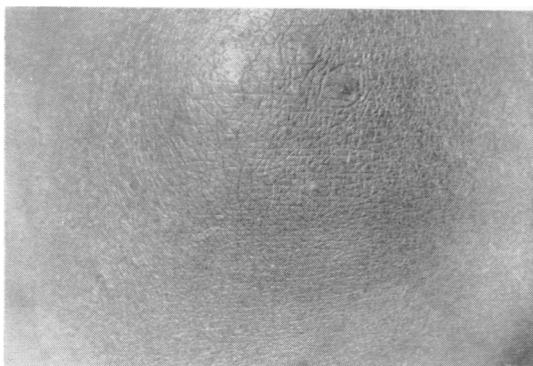


FIG. 2.—Beat shoulder; enlargement of the early case shown in Fig. 1.



FIG. 3.—Beat shoulder; enlargement of late case shown in Fig. 1.

TABLE 1a
NUMBERS AND ETHNOLOGICAL GROUPS OF
MINERS EXAMINED

	Mozambique Bantu	Basuto	South African Bantu
Recruits	421	366	285
Discharges	352	322	230

TABLE 1b
PREVALENCE OF BEAT SHOULDER

	Mozambique Bantu	Basuto	South African Bantu
Recruits	1	8	3
Discharges	0	89	21
Sick parade patients	0	81	4

Discussion

The ethnological prevalence of beat shoulder is interesting from the economic as well as the medical point of view. It appears that because of the work they do the Basuto and South African Bantu miners are prone to develop this condition. Beat shoulder does not disable the miner because he does not work for much longer than six months at one time, after which he usually returns to his home for about the same period before returning to work as a miner. If his contract period was as long as the Bantu from the Mozambique, about 18 months, beat shoulder would become a real problem medically as well as economically. Periods of work pushing tubs for longer than about six months would probably result in more severe infections and consequently shifts lost from work. The break from work is beneficial. I was able to observe the changes which occurred in a marked case of beat shoulder in a patient admitted to hospital for lobar pneumonia. The patient's stay in hospital was prolonged because he developed a pleural effusion. He was treated with antibiotics and washed daily. After five weeks the shoulder appeared almost normal except for the minor tattooing effect of some minute particles of grit.

It is suggested that the minimum period of recovery from beat shoulder is about five weeks.

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