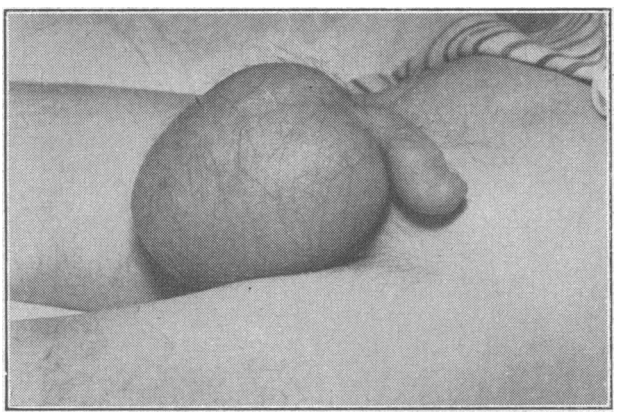
extended down the right side of the trunk from 2 in. (5 cm.) behind the posterior axillary line forward to the midline and down to about 1 in. below the right inguinal ligament. There was a bilateral rounded swelling of the scrotum measuring some 6½ by 5½ by 4½ in. (16.5 by 13.9 by 11.4 cm.) (see illustration). The swelling was tense, cystic, non-tender, resonant on percussion, and highly translucent. It was irreducible and there was no cough impulse. What was thought to be the most characteristic physical sign was the high-pitched squeak, like that obtained from a rubber balloon, emitted on stroking firmly with the fingers. No crepitus was elicited over the scrotum. The testes were not palpable nor were they revealed by transilluminatio. Surgical emphysema extended back to the perineal body and was also found along the penis. It should be noted that the scrotum alone contained about three times the volume of air used at the induction. This suggests that the induction was followed by a spontaneous pneumothorax, or that, owing to diffuse pleural fusion, the needle had punctured the lung.

An *x*-ray film of the chest showed no evidence of air in the pleural cavity or mediastinum, but considerable pool-



ing of air between the muscle layers. The fibres of the pectoralis major muscle were clearly defined owing to infiltration of air between them. *X*-ray examination of the abdomen showed similar collections of air between the muscle layers, and the right kidney was clearly outlined, proving the presence of air in the retroperitoneal plane. An *x*-ray film of the scrotum showed the septum clearly defined between collections of air in each scrotal compartment, the testes being pushed well up into the groins.

No treatment was given, as the condition was causing no distress, but the swelling persisted for more than three weeks.

COMMENT

The interest in this case lies in the fact that no reference has been found in the literature to the occurrence of scrotal pneumocele as a complication of pneumothorax treatment. Distension of the scrotum with air has been reported as a sequel to diverticulitis of the colon with perforation (Rankin and Judd, 1922) and as a complication of pelviolithotomy (Counseller and Butsch, 1935). Wynn-Williams (1949) suggests that scrotal pneumocele as a complication of artificial pneumoperitoneum is more common than previously thought. He reviews the literature and finds that ten cases have previously been reported. He adds a case of his own which was further complicated by a strangulated inguinal hernia. In this case a distended processus vaginalis was demonstrated at operation.

Most authors comment on the presence of crepitus in the scrotum, but in the case reported above this was absent and the "balloon" sound provided the most convincing sign of the presence of air in the scrotum. The demonstration of this physical sign to a hitherto mystified group of students immediately evoked the correct diagnosis. Another interesting feature of this case was the early inflation of the scrotum when there was relatively little surgical emphysema elsewhere. This may be related to the disruption of the tissue planes associated with the right inguinal herniorrhaphy.

I wish to thank Dr. Kenneth Perry for permission to publish this case, and Dr. C. M. Ogilvie for his advice and encouragement.

R. A. REDD, M.B., B.S.,
Late House-physician, the London Hospital.

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Onchocerca Volvulus in a Paratyphoid Abscess

An African girl aged 14 was admitted to the Gold Coast Hospital, Accra, for investigation of pain in the right groin. She was found to have a slightly tender area on the inner side of the right thigh near the origin of the adductor muscles. For four weeks she had an irregular temperature with a varying leucocytosis, whilst the induration slowly progressed to a fluctuant abscess. There was no response to penicillin treatment.

The abscess was incised and yielded about 6 oz. (170 ml.) of pus, which contained fragments of an adult filarial worm. Dr. M. H. Hughes examined the pus and reported that it yielded *Salm. paratyphi C* in pure culture. The worm was thought likely to be *Onchocerca volvulus*, and Professor J. C. C. Buckley kindly confirmed this provisional identification.

In view of the finding of an adult *O. volvulus*, skin smears were examined on a number of occasions, but no microfilariae were detected. The patient made an uninterrupted recovery after evacuation of the abscess, and *Salm. paratyphi C* could not be isolated from her stools. She gave no history of a previous feverish illness which might have been paratyphoid C fever, although this is not an uncommon cause of fever in children in Accra.

COMMENT

Suppuration in onchocerca nodules and the presence of these worms in deep abscesses have not often been recorded in the literature. Roubaud and Jamot (1920) recorded a case of a large subpubic abscess from which at incision 10 entire male and five female worms were obtained. Rodhain (1920) considered suppuration in nodules rare and usually limited by the fibrous capsule. He described two cases of suppuration in superficial nodules, both with superficial ulceration. Chesterman (1932) mentioned that he had seen only one case of abscess formation. Strong *et al.* (1934) also described it as exceptional, and mentioned only one case of its occurrence, in a scalp nodule. Gabathuler and Gabathuler (1947), reporting on onchocerciasis in East Tanganyika, mentioned it as a possible cause of the deep-muscle abscesses seen so frequently there, and described finding an adult female worm in an abscess on a rib of a patient showing multiple muscle abscesses.

The interesting features of the present case are the negative skin tests, absence of nodules, the finding of only one worm, and the unusual nature of the infecting organism. It is also curious that the site should have been the same as that of one of the few previously described cases. It remains to conjecture whether the presence of the worm in the abscess was purely coincidental, or whether, alive or dead, it provided the nidus for the infecting organism.

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H. DE GLANVILLE, M.B., B.Chir.,
Temporary Medical Officer, Colonial Service, Gold Coast.

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