found that the strabismus had existed since childhood. The pupils were dilated but reacted normally to light. Abdominal and plantar reflexes were normal. There was a leucocytosis of 12,400. Lumbar puncture soon after admission yielded a turbid fluid under increased pressure.

Sulphapyridine was given by the mouth, the initial dose being 2 g. Oral administration was satisfactory, and 9 g. were given in the first 24 hours. The patient rapidly became quieter, and the temperature had fallen to 99.4° F. by the following morning. The general condition was better, the headache less severe, and the mental state normal. The rash had almost completely faded, but petechiae were noted on the anterior aspect of the legs and there was a circular purpuric patch an inch in diameter on the right calf. The ptosis persisted and neck rigidity was still present, but Kernig's sign was negative. Lumbar puncture again yielded a turbid fluid; the pressure was normal. Sulphapyridine was continued in a dosage of 1 g. every 4 hours.

Improvement continued, and during the next few days the rigidity, ptosis, and headache abated. The dosage of sulphapyridine was decreased and the drug was discontinued on June 5, a total of 22 g. having been given. A slight right otitis externa, noticed on June 8, responded quickly to treatment. Convalescence was rapid, and no abnormality was detected on routine examination on June 14.

Laboratory Findings

The cerebrospinal fluid obtained on May 31 was turbid. There were 330 cells per c.mm., mainly polymorphs; protein 240 mg. per 100 c.cm. Fair numbers of Gram-negative diplococci were present, sometimes intracellularly. The opposed sides of the cocci were flattened, but the organisms were on the whole rather larger and more irregular in size than meningococci. Culture of the deposit on blood agar aerobically produced in 24 hours a profuse growth of yellowish mucoid colonies consisting of encapsulated Gram-negative diplococci. The characters of these organisms were as follows:

Morphology.—Gram-negative cocci occurring in pairs with the opposed sides flattened. A capsule was demonstrated by nigrosine and Muir's method.

Growth in Broth.—Diffuse turbidity in 24 hours at 37° C. aerobically.

Agar and Blood Agar, 24 Hours Aerobically.—Abundant growth of low convex, opaque, greyish-yellow, round colonies, 2 to 3 mm. in diameter, smooth surface, entire edge, mucoid consistency, undifferentiated. There was no true haemolysis, but the blood underwent a brownish discoloration. Growth was slightly better at 37° C. than at 22° C.

MacConkey's Agar, 24 Hours Aerobically.—Good growth of similar colonies, tending later to develop an effuse periphery and a finely crenated edge.

Gelatin Stab.—Growth along the line of the stab and on the surface. No liquefaction in 3 weeks.

Biochemical Reactions.—Acid, without gas, was produced in glucose in 24 hours, but not in lactose, mannite, sucrose, or dulcitol. Litmus milk was unchanged, indole was not produced, and the M.R. and V.P. reactions were both negative.

Pathogenicity.—1 c.cm. of a 24-hour broth culture was injected intraperitoneally into a guinea-pig without effect.

The cerebrospinal fluid obtained on June 1 was still turbid and contained smaller numbers of pus cells, but no organisms were seen in direct films. No growth was obtained on culture. Protein was 80 mg., chlorides 700 mg. per 100 c.cm.

The organism agrees in all respects with the type A form of *Diplococcus mucosus* described by McFarlan, who has discussed the systematic position of these strains and suggests that they are probably variants of the *Neisseria pharyngis* group. Though the evidence points strongly to the present strain being the cause of the meningitis, it would have been more conclusive if the isolation had been made on more than one occasion. Response to sulphapyridine was so prompt, however, that no organisms were found in the second specimen.

We are indebted to the Director-General, Army Medical Service, for permission to publish this report.

REFERENCES

- Cowan, S. T. (1938). *Lancet*, 2, 1052.
Lingelsheim, W. von (1906). *Klin. Jhrb.*, 15, 373.
— (1908). *Z. Hyg. Infektkr.*, 59, 457.
McFarlan, A. M. (1941). *J. Path. Bact.*, 53, 446.

MULTIPLE MUSCLE HERNIAE

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Although from time to time one sees simple muscle herniae, usually of the tibialis anticus, they give rise to little comment, as frequently they cause only slight if any trouble. In most standard textbooks the subject is dealt with very briefly, and few references can be found to it in recent literature. The cases that have been described are mostly those of fairly large single hernia, but bilateral herniae of the tibialis anticus have been recorded.

Ihde (1929), in a comprehensive review of the literature, himself reports 12 new cases, but all those mentioned in the review, including his own, were either single or single bilateral herniae. No case of multiple or multiple bilateral herniae of the lower leg was mentioned. Neither have we been able to find any reference to this condition in later literature. We therefore consider the following three cases of multiple herniae of the tibialis anticus worth recording.

All three patients were soldiers and had been engaged in strenuous training in rough hilly country, and it seems possible that both the nature of the training and that of the country

were contributing factors in producing the herniae. This is in accordance with the experience of Hesse (1921), who found muscle herniae rare except in mountainous districts, and of Pichon (Ihde, 1929), who found 39 cases in 217 Alpine soldiers, but only 1 in 1,000 Russian recruits. The herniae we have seen were small—about the size of a pea. All were reducible, and they disappeared when the muscle was contracted, leaving no palpable thickening. The splits in the fascia were distinctly felt. The openings were round and had quite sharp defined edges.

Records of Three Recent Cases

Case 1.—An infantryman was referred to hospital because of aching in both legs, which started during an intensive training course and was attributed to small varicose veins. Previously he had had no trouble, and was not a recent recruit. In addition to the varicose veins, three small reducible muscle herniae about the size of peas were present in the left leg, situated over the belly of the tibialis anticus muscle. The herniae were not tender, and disappeared completely on pressure and when the muscle was contracted.

Case 2 (illustrated).—This patient, an infantryman, was referred to hospital because of aching in both legs and both feet, attributed to varicose veins. He had had no previous trouble, was engaged in a course similar to that of Case 1, and was not a recent recruit. He had no varicose veins, but there were 13 small herniae of the right and 4 of the left leg, all situated over the tibialis anticus muscles. All were reducible, and all disappeared when the tibialis anticus muscles were contracted.

Case 3 (illustrated).—This patient was referred to hospital because of varicose veins. He also was an infantryman and not a recent recruit, and he complained of a "heavy feeling" of the right leg when running. This was first noticed two months previously after a football match, and at that time he observed a small swelling on the front of the leg. Recently he had been taking part in cross-country runs for the first time, and after one run noted the appearance of a second swelling. He had no varicose veins, but there were two small muscle herniae over the tibialis anticus, differing in no way from those in the other two cases.

Discussion

The pathology of muscle hernia is discussed at length by Ihde in his article, and there seems to be no reason why the origin of the small multiple herniae we have found should differ from that of the larger ones which he describes as due to severe strain, with hypertrophy of muscle and weakening and splitting of a previously deficient muscle fascia, as distinct from those which follow direct injury. The only condition with which these small herniae might readily be confused at first sight is varicose veins, but on closer examination the diagnosis is fairly obvious.

One reference only has been found to treatment of a small hernia in this region. Schmier (1937) describes the case of a runner with bilateral herniae over the tibialis anticus muscles, but he does not state the size of the swellings. However, as the man was first seen at a varicose veins clinic they were probably small. Both herniae were treated with repeated injections of sodium morrhuate. This allowed return to strenuous activity without discomfort for a year, when further injections were required to relieve the returning pain; it is doubtful, however, if this method would be suitable for multiple herniae. In the cases we have seen, apart from suggesting modification of duty, no treatment was advised, as the men complained of pain only after strenuous cross-country journeys; otherwise they were fit for all ordinary duties.

It may be that on account of their rarity these multiple small muscle herniae of the lower leg are of no great significance. On the other hand, having seen three cases within a few weeks in soldiers undergoing intensive training we considered them of sufficient interest to warrant a brief report.

REFERENCES

- Hesse (1921). *Zbl. Chir.*
Ihde, H. (1929). *Acta chir. scand.*, 66, 97.
Pichon. Ihde's reference (loc. cit.).
Schmier, A. A. (1937). *J. Amer. med. Ass.*, 109, 28.

Medical Memoranda

Mantoux Test versus Patch Test

Several papers have been published in recent years on the detection of tuberculous allergy by the patch test. In Monrad's (1936) series of positive Mantoux reactors 5% were negative to the patch test; in Wolff and Hurwitz's (1937) series 1.8%; in Vollmer and Goldberger's (1937) less than 1%; Hart's (1938) first series had 3%, and his second (1941) less than 2%, while Court's (1939) series had 2%. Camille Kereszturi (1941), however, showed that 15% of his positive Mantoux reactors were negative to the patch test. It is advisable, therefore, to check up on these findings from time to time, and for this reason the results of an investigation seem worth recording.

INVESTIGATION OF 116 CASES

All the children admitted to the medical wards of a base hospital over a certain period were tested by the intradermal (Mantoux) and the percutaneous (patch) methods. The age varied from 6 months to 12 years. In the intradermal test 0.1 c.cm. of 1:1000 freshly prepared old tuberculin was injected into the skin of the forearm: this was sufficient to raise a wheal 8 mm. in diameter. The test was read 24 and 48 hours after injection, and was not considered positive if the

resulting wheal or flare was less than 10 mm. in diameter. In carrying out the percutaneous test a tuberculin patch was applied to the chest wall between the scapulae and lateral to the spine after cleansing the skin with ether and allowing it to dry. The patch was removed after 48 hours, and the reaction was read 24 and 48 hours after the removal. Papules or a red flare, or any intermediate stage, were regarded as a positive reaction. The patches used were those of Messrs. Evans Sons Lescher and Webb. The following were the results:

Total number tested	116
Number negative to both tests	74
" positive	34
" to intradermal and negative to patch test	8
" negative " " positive " " "	0

There was one case of plaster dermatitis. In two cases the patch tests were negative after 24 but positive after 48 hours. These were considered positive reactions. Of the Mantoux tests 10 were apparently positive after 24 hours, but had faded to negative after 48 hours. These were recorded as negative reactions.

SUMMARY AND CONCLUSIONS

The intradermal Mantoux test and the tuberculin patch test were performed on 116 children.

The Mantoux test was positive in 8 cases in which the patch test was negative.

Both tests should be read 48 hours after being applied, to avoid false positives thought to be due to the erythema around the needle puncture. It is important to use a preparation of old tuberculin not more than three weeks old.

It seems likely that different observers employing patches of different make may get variable results. The intradermal method is less liable to diversity and is more reliable.

I am grateful to Dr. Wyllie for his interest in this investigation, and for permission to publish the series; also to the nursing staff for their helpful co-operation.

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BIBLIOGRAPHY

- Anzén, G. (1935). *Amer. J. Dis. Child.*, 50, 104.
Court, D. (1939). *British Medical Journal*, 1, 824.
Hart, F. Dudley (1938). *Lancet*, 2, 609.
— (1941). *Ibid.*, 1, 414.
Kereszturi, C. (1941). *Amer. Rev. Tuberc.*, 44, 94.
Monrad, S. (1936). *Ugeskr. Laeg.*, 88, 885.
Vollmer, H., and Goldberger, E. W. (1937). *Amer. J. Dis. Child.*, 54, 1019.
Wolff, E., and Hurwitz, S. (1937). *J. Amer. med. Ass.*, 109, 2042.

Convulsive Treatment of Climacteric Depression

Treatment of cases by electrically induced convulsions was begun in this hospital in March, 1942, and for the nine months ending Dec., 1942, we had the following results in female patients:

	Acute	Chronic	Total
No. of patients treated	43	17	60
Total No. of convulsions	945	349	1,294
No. of patients discharged	*30 (69.2%)	0	30

* Of this total 26 (60.6%) were discharged recovered and 4 (9.3%) were discharged relieved.

The average stay in hospital of all discharged cases was 5½ months—in recovered cases 5½ months, and in cases of involutional melancholia 4 months. The classification of these patients, the number treated, and the percentage rate of discharge in each class were:

Diagnosis	Number	Percentage Discharge
Involutional melancholia	25	68
Schizophrenia	19	31.5
Mania	3	100
Psychoneurosis	3	100
Other psychoses, including mixed types, puerperal confusion, and paraphrenia	10	30

The results in schizophrenia are poor. The 31.5% discharge rate noted in this group occurred in cases of very recent onset, and their clinical histories suggested the likelihood of remission with or without special treatment. The course of the illness noted under mania, psychoneurosis, and "other psychoses" seemed also to be unaffected by electrically induced convulsions.

As with other workers, our experience suggested that the best results are to be obtained in melancholia, especially of the involutional type. According to Jessner and Ryan (1942), "rather striking results have been reported in involutional