

TRENCH NEPHRITIS: A RECORD OF FIVE CASES.

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IN THE BRITISH MEDICAL JOURNAL of July 17th, 1915, there appeared a short description of what was called a new disease occurring amongst soldiers who had been for a considerable time in the trenches.

Certainly from my own clinical hospital experience I had not met with such a symptom-complex, and as the etiology of this condition has up to the present remained uncertain, a careful record of cases is desirable.

CASE I.

A soldier, aged 33, was sent down from the front suffering from acute nephritis. He had been in the trenches for seven weeks, and had often been up to his waist in water. He stated that the onset was sudden, and that he first noticed a feeling of chilliness and swelling of face and feet. The urinary changes were characteristic; there was suppression of urine for the first twenty-four hours, and, afterwards, very small quantities (not measured) accompanied by great pain in the back and constant vomiting.

On admission to hospital he presented a typical clinical picture of acute nephritis. Analysis of the urine gave the following results: Specific gravity 1025, smoky, albumin present in large quantity. Microscopically, blood corpuscles, hyaline, and blood casts were seen. No specific micro-organisms could be isolated. Under careful treatment the albumin rapidly disappeared, the symptoms passed off, and he made a complete recovery, the attack only lasting twelve days. He had not previously had any kidney trouble.

CASE II.

A soldier, aged 33, was a much more severe case. He had been in the trenches for several weeks, and had been exposed to very bad weather. On admission he had almost complete suppression of urine, and it was with great difficulty that urinary secretion could be induced. Only after hot pack and hot mustard and linseed poultices had been applied to his loins was there any secretion of urine. It was loaded with albumin, with numerous hyaline casts, but no blood. No distinctive organisms could be isolated.

He remained in a state of eclampsia for three days, with strong convulsions, but these subsided, and he made an excellent recovery. His blood pressure on admission was systolic 230, diastolic 190, soon considerably reduced.

CASE III.

A soldier, aged 27, admitted in a serious condition; continuous vomiting and semi-unconsciousness; urine very deficient, specific gravity 1028, granular casts, albumin, no blood. Headache severe, with general anasarca.

Hot packs and injections of pilocarpine had an excellent effect, the urine increased in quantity, and the albumin was reduced to 1.1 grains per ounce. In sixteen days the albumin had disappeared, and he was well enough to be sent home.

CASE IV.

A soldier, aged 24; had been in the trenches for some weeks, and had been frequently very wet. His condition was much the same as Case III. The urine secreted was only 18 oz. in twenty-four hours, and it was loaded with albumin and granular casts.

The attack, although very acute, passed off rapidly, and the albumin quite disappeared.

CASE V.

A soldier, aged 42. No previous renal trouble. Had been in trenches for several weeks.

On admission he was only passing 10 oz. of urine in twenty-four hours, highly concentrated, and containing a large quantity of albumin and casts; no blood and no special organisms.

Treatment with hot packs and diuretics had the desired effect, and he soon made a quick recovery.

CONCLUSIONS.

1. There seems to be some association between life and conditions in the trenches and the disease.
2. None of these patients had any previous kidney trouble, and they all made a good recovery from what seemed to be a serious lesion of the kidney structure.
3. Bacteriological examinations were negative, and one is inclined to think that some infective process—giving rise to a toxin with a selective action on the renal epithelium—is the cause of this unusual symptom-complex.

ARTIFICIAL PNEUMOTHORAX:

MANOMETRIC ABERRATIONS.

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HAPPY is the operator who, on first entering the needle in a primary case, sees the manometer registering -14 to -16 c. in inspiration and -6 or -8 in expiration, and then going on with steady and ample oscillations in time with the patient's regular breathing, the pressure rising very gradually as nitrogen enters the pleural cavity. But things do not always go on in this encouraging way, and the operator who has well impressed upon his mind a wholesome fear of gas embolism will often find the aberrations of the manometer providing him with anxious problems.

A slight *minus* pressure inspiration, becoming less in expiration, may be produced by the point of the needle not actually entering the pleural cavity at all, but pushing the parietal pleura before it. It would obviously be dangerous to force in gas in such circumstances. But anything between the normal ample oscillations and the abortive manometric readings last described may be produced when the point of the needle is in a very small "pocket" in the pleura surrounded by adhesions. A pocket of very moderate size may give fairly normal manometric readings at the outset, but the pressure rises very rapidly with the entrance of gas in comparatively small quantity. We may hope for adhesions to give way, yielding either suddenly or gradually to gas pressure, but the smaller the space into which gas enters the less chance there will be of this taking place. For a given pressure to the square inch the pull upon the surrounding adhesions must be small when the space containing gas is small, increasing as the pressure is exerted over a larger area. It follows that when the "pocket" is very small the prospect of benefit is small; and the risks are increased. The indication is to abandon the attempt to induce a pneumothorax at that point; puncture somewhere else may be more successful.

In a primary operation, where the pleura is fairly free from adhesions, 300 c.cm. of nitrogen will not produce a *plus* pressure, even in expiration. And it is not, as a general rule, advisable to exceed this quantity at first. The exception is in haemorrhage from a cavity. It is then imperative to induce a complete pneumothorax at once, if possible, because to do so is the most effectual means of restraining haemorrhages. The risk from haemorrhage is greater than that from rapidly filling the pleura with gas.

On first inserting the needle in a primary case a *plus* pressure in expiration is proof that the needle has gone through into the lung.

The reading found at the commencement of a secondary operation (or "refill") will be the pressure left at the conclusion of the previous operation, modified by what has since taken place. Usually the pressure will have fallen, owing to absorption of gas. But the occurrence of pleural effusion (which takes place in a considerable proportion of these cases) may actually raise the intrapleural pressure. The rule, therefore, that a *plus* pressure in expiration implies that the needle has gone through into the lung, only applies to a primary operation before any gas has been injected, but it is then a rule absolutely without exception.

There will be no movement of the manometer at all if the opening of the needle is in consolidated lung. But what may be called the typical pulmonary oscillations will be likely to occur when it is in a bronchial tube, or a cavity either tuberculous or bronchiectatic, or the space formed by the fusion of emphysematous vesicles. In the circumstances, the oscillations will approximate to an atmospheric mean—that is, the *minus* pressure in inspiration will be equal to the *plus* pressure in expiration, or nearly so. The amplitude of the oscillations will depend partly upon the nature of the space entered by the needle and partly upon the character of the respirations, whether tranquil or laboured. But when the patient speaks the expiratory effort with a closed glottis produces, while it continues, a greatly increased pressure. And this is greater still in coughing. I may remark in passing that the same thing happens also when the needle is in the pleural cavity after gas has been injected. So that it is