

## GONORRHOEA IN NORTH AFRICA AND THE CENTRAL MEDITERRANEAN

BY

DOUGLAS J. CAMPBELL, F.R.C.P.Ed., D.P.H.,

Lieut.-Col., R.A.M.C.; Adviser in Venereology, A.F.H.Q., B.N.A.F.

During recent years the lay public, and even members of the medical profession, have come to look upon gonorrhoea as a condition in which "one just takes some tablets for a few days" and all is well. The danger of such complacency has become increasingly obvious as the campaign has progressed through North Africa into the Latin countries.

While the Army was situated in Algeria and Tunisia the response to chemotherapy ran a course similar to that experienced in the United Kingdom, and failures were usually attributable to irregularity of the treatment, insufficient fluid intake through shortage of drinking-water in very hot conditions, and the hardships of battle resulting in delay in starting treatment. In the last category metastatic complications, such as gonococcal arthritis, were common. Throughout the first months of the campaign sulphapyridine was the drug in general use, administered as a course of 20 to 30 g. in 5 days. Towards the end of the North African phase sulphathiazole, 10 g. in 2 days, was introduced. This was given in forward medical units, so far as was possible, to obviate evacuation. While the response to this form of therapy was not as good as the 90% claimed in the United Kingdom, the 70 to 75% satisfactory results materially conserved man-power and hospital accommodation.

A very different picture presented itself when the campaigns in Sicily and Italy began. Forward treatment of gonorrhoea failed almost completely, and as at first the venereal diseases expansions were still with general hospitals in North Africa, these unsuccessful cases had to be evacuated, and filled the beds of the expansions, which were thus retarded in their movement forward.

A well-staffed and experienced V.D. treatment centre opened in Sicily and, in conjunction with units of field ambulances, endeavoured to stop the need for evacuation to general hospitals. It was immediately evident that short courses of chemotherapy were useless. Less than 25% were responding, and of these a large proportion relapsed on the way back to rejoin their units. Dosage was increased to 25 to 30 g. of sulphathiazole or sulphapyridine in 4 to 5 days, there being apparently little to choose between the drugs. Second courses were necessary in 70 to 80% of cases after 5 to 7 days' irrigation treatment, and as the battle progressed, with lengthening lines of evacuation, more chemotherapy was given, till large numbers of men reached the main V.D. units still showing gonococci in their discharges after receiving as much as 130 g. of various sulphonamides.

In these early days there was some irregularity in the administration of the tablets, but even when this was rectified the same dismal picture of failure continued. The economic conditions in Sicily and Italy which drove women to prostitute themselves for food and chocolate constituted a menace never encountered by our troops before, and the incidence of venereal diseases increased.

As the campaign has progressed northwards in Italy and expert venereal diseases treatment units have moved forward there has been a slight improvement in the picture, but considerably less than 50% of acute gonorrhoea cases respond to an initial course of 25 to 30 g. of sulphathiazole, and relapses are common. Irrigations for the succeeding 5 to 7 days, followed by a second course of sulphapyridine or sulphadiazine, have proved successful in a few cases, but resort to pyrexial therapy by means of intravenous T.A.B. vaccine during this second course of chemotherapy has become almost a necessity. Some success has followed the use of the standard Army gonococcal vaccine.

Gonorrhoea has become a disease requiring a long stay in hospital. Clinically there is a profuse urethral discharge, containing large numbers of gonococci, persisting for many weeks despite the treatment described. Involvement of the posterior urethra occurs early, with considerable incidence of prostatitis

and epididymitis. Epididymitis often occurs when the patient has been in hospital for several weeks under optimum conditions of rest and treatment, and is usually severe. Metastatic conditions such as gonococcal arthritis and iritis are rare. It has been freely suggested that we have met a sulphonamide-resistant gonococcus, due to inadequate treatment of the civilian women, but the shortage of the drugs in Sicily and Italy and the complete lack of treatment of infected civilians over a long period make this idea somewhat unacceptable. The restoration of adequate civilian treatment under the auspices of A.M.G. is progressing rapidly, but it is too early to evaluate results. Rather does it appear that the gonococcus now encountered is a non-reactor to chemotherapy and, further, that it does not stimulate natural antibody responses in the victim. Venereologists with wide experience in the United Kingdom, North Africa, and the Middle East are working together now, and none have previously met similar conditions. Our American colleagues have found the same conditions among their troops, and have had to enlist penicillin as alternative therapy, with considerable initial success. If throughout Europe similar difficulties are to be met in future campaigns, gonorrhoea will be an immense scourge, with resultant strain on medical personnel, hospital accommodation, and man-power. There is no longer reason for complacency.

### Summary

Since the invasion of the Latin countries gonorrhoea has proved intractable to the former accepted methods of treatment by chemotherapy.

Treatment must be given regularly and prescribed with ingenuity. Adjuvant methods are necessary in a high percentage of cases.

Experienced venereologists and special treatment orderlies are required in greater numbers than before.

Every endeavour to prevent infection must be made.

## Medical Memoranda

### Fixation of Tissues from Cases of Malaria

It is common knowledge among pathologists that formalin reacts with lysed blood to produce a dark-brown deposit, and that this occurs both with blood lysed before death (e.g., in an extravasation) and with the intravascular blood which soon after death begins to undergo progressive lysis. This formalin-blood deposit unfortunately closely resembles the pigment produced in malaria, and it is thus important, as Lignac (1924) warned, to avoid the use of formalin as a sole fixative for malarial tissues.

Barrett (1944) has recently shown that formalin deposit can be easily removed from sections by immersion for two hours in picric alcohol, and hope was aroused that this might, after all, allow the use of formalin in cases of malaria. To test the effect of picric alcohol on malarial pigment, sections of various viscera (fixed in 95% alcohol and in Zenker's fluid) were treated for one and three-quarter hours; the malarial pigment was almost completely dissolved away. Thus treatment with picric alcohol does not differentiate between malarial pigment and formalin deposit. (Melanin, a possible source of confusion, was found in a section of a cerebral metastasis from a melanoma of skin to be apparently unaffected by picric alcohol.)

Formalin is in general not a satisfactory fixative by itself for tissues that are to be embedded in paraffin (Mallory, 1938), but it has one advantage that makes it of particular value to those interested in malaria: it is less lytic towards the fragile post-mortem erythrocyte than is any other common fixative. This property is utilized, formalin deposit largely prevented, and the tissues rendered suitable for paraffin embedding by the following procedure:

Primary fixation is carried out in formalin (10 parts with 90 of water) for 3 to 6 hours (or in formol sublimate if the tissues be less than 6 hours dead), followed by direct transfer to 5% aqueous mercuric chloride, in which fixation is continued for 5 to 20 days (Lendrum, 1941).

This method, which is the ideal routine fixative for human post-mortem material, is suggested for malarial tissues because of the minimal lysis and the clarity of the microscopical picture; but, since there is still a slight risk of deposit, it is essential that tissues from suspected malaria should also be fixed in formalin-free fluids. The two methods of this kind commonly used in the past were fixation in 90% alcohol (ethanol) or in Zenker's fluid. Both of these unfortunately cause lysis of