

SPECIMEN COLLECTION.

By W. J. HATCHER.

If a reliable report is to reach the physician, it is absolutely essential that the specimen should be dispatched to the laboratory in a satisfactory condition, that is to say the material must be as fresh as is possible, or have been preserved in a suitable manner. An adequate amount should be sent, and it must be accompanied by such necessary information as the patient's name, age, sex, ward, case number, etc., nature of the specimen sent, and particular investigation required. In addition any clinical history that might help diagnosis should also be supplied, certainly the dates and record numbers of any similar investigations previously undertaken.

BLOOD INVESTIGATIONS.

Hæmatological Examination.—Samples of blood for estimating the total number of red and white cells present, and the percentage of hæmaglobi are almost invariably taken by the laboratory staff, for the whole accuracy of this investigation depends upon the skill and experience with which the blood is collected. When the patient is some distance from the laboratory, a blood film alone may be sent, and this if made correctly can in certain conditions be of considerable value. Blood counts may be carried out on samples of oxalated blood. This is not, however, a very satisfactory arrangement.

DIRECTIONS FOR MAKING A GOOD BLOOD FILM.

Blood is obtained by pricking either the lobe of the patient's ear or finger; the part must, of course, be very carefully cleaned, firstly by washing, and then with ether. Reject the first few drops of blood obtained, then touch the next hanging drop of blood with the end of a microscope slide, having another in readiness, then while holding the first slide at an angle of 30 deg., push it gently and lightly along the surface of the second slide, the drop of blood being drawn and not pushed along. At all cost avoid making a thick film. Finally dry the film in a dust free place, but do *not* use heat. Particular care must be taken to see that the slides are perfectly clean and grease free.

BIOCHEMICAL TESTS.

A fairly large volume of blood, at least 10 c.c. is required for most of the biochemical reactions. The blood is withdrawn from a vein by means of a syringe, and immediately expelled into a clean and preferably sterile tube containing a few crystals (20 milligrams) of potassium oxalate to prevent clotting. The tubes must be gently shaken to ensure that the whole of the blood comes in contact with the potassium oxalate. Care must, however, be taken to avoid having an excess of potassium oxalate, as this may easily cause a false result to be obtained.

Many tests including the following can be carried out on oxalated blood.

Estimation of Blood Sugar.

Estimation of Blood Urea.

Estimation of Non-Protein-Nitrogen. (N.-P.-N.)

Clotted blood is required for blood calcium and Van den Bergh's reaction.

Analytical quality in powder form is preferable.

SEROLOGICAL TESTS.

The Wasserman and Widal tests are carried out with clotted blood (or rather with the resulting serum). About 5 c.c. is required which is usually withdrawn from a vein by a syringe, expelled into a clean test-tube and allowed to clot. The tube should be well stoppered, preferably with a rubber bung. It is advisable to remember that most laboratories have a day specially set aside for carrying out Wasserman tests, and this should be ascertained before dispatching a blood specimen.

BLOOD GROUPING.

In most cases this is carried out by a competent member of the laboratory staff direct from the patient, but in cases of necessity oxalated blood may be used. A small amount of blood only is required.

BLOOD CULTURE.

This is also essentially a matter for the laboratory staff. Blood is withdrawn from a vein by a syringe and immediately expelled into tubes of broth.

FRACTIONAL TEST MEALS.

The actual withdrawal of the stomach contents is, of course, carried out under the direct supervision of the clinician in charge of the case, the laboratory staff being only concerned with carrying out the subsequent tests. The necessity of withdrawing an adequate amount of fluid for each sample does not seem to be fully appreciated; at least 8-10 c.c. is required, and the tubes (which must be perfectly clean and corked, *not* simply plugged with cotton wool) accurately labelled.

FÆCES.

The amount of fæces required by the laboratory for any but quantitative examinations is very small. On account of the large number of organisms always present, specimens for bacteriological examination should always be sent direct to the laboratory, as should stools in which the presence of parasites is suspected.

OCCULT BLOOD.

It is usually necessary to put the patient on a meat-free diet for some days before collecting the specimen.

Other investigations occasionally called for are tests for fæcal fats, and the presence of bile.

URINE.

For a full chemical examination a twenty-four hour specimen is required, and during collection it should be kept in the ice box or preserved by the addition of a crystal of thymol. A well-mixed sample of this (8-10 c.c.) should be sent to the laboratory, together with a note of the total volume passed. Urine intended for bacteriological examination must, of course, be received into a sterile container, and if a catheter specimen, the laboratory informed.

SPUTUMS.

If bacteriological examination by culture is desired the specimen must be collected in a sterile vessel. In any case it is essential to see that a proper sputum is obtained, not mere saliva, which is of very little use.

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