

## Medical Matters.

### COMPLICATIONS OF ABDOMINAL OPERATIONS.

An interesting and instructive paper on the above subject, read by Mr. J. L. Joyce, M.R.C.S., L.R.C.P., is published in the current issue of the *St. Bartholomew's Hospital Journal*. Mr. Joyce said, in part:—

#### SHOCK, COLLAPSE, AND HÆMORRHAGE.

Shock and collapse are usually the first complications met with after an abdominal operation.

Shock and collapse are commonly taught to be separate and distinct conditions, and are thus defined by Lockhart Mummery:—

"Shock is a condition resulting from a fall in general blood-pressure due to exhaustion of the vaso-motor centres."

"Collapse is a condition resulting from a fall in general blood-pressure due to a loss of the circulating fluids."

There is a common factor in these two definitions, namely, "the condition resulting from a fall in the general blood-pressure."

After a severe hæmorrhage it is impossible to say where collapse ends and shock begins, because collapse soon passes over into shock, owing to the exhaustion of the vaso-motor centres from their efforts to maintain the general blood-pressure at its normal level.

To prevent confusion, I shall in this paper speak of shock and collapse as identical and as meaning "the condition resulting from a fall in the general blood-pressure." A distinction is made between four types of shock or collapse, by the cause from which each type springs.

The first type is Over Stimulation Shock. During a prolonged abdominal operation there is a primary stimulation of the centres by afferent nervous impulses, with vaso-motor contraction and consequent rise of pressure. The centres then become over-stimulated and are exhausted, the vessels dilate and the pressure falls. In time the dilatation is such that the pressure cannot be maintained by the heart alone, and steadily falls until either the centres recover or the patient dies.

This type of shock is typically seen after the peritoneum has been roughly handled, or exposed to too hot or too cold surroundings, or to the action of a chemical irritant. Children suffer specially from this type of shock, and of all operations that of an enterectomy for the relief of an irreducible intussusception is the worst.

The second type of shock is that produced by loss of blood or other fluids.

The third type may be called "Toxic Shock." It is due to the action on the vaso-

motor centre of toxic substances, carried thither in the blood and lymph. It is often seen in cases of acute general or diffuse peritonitis.

The fourth and last type is due to an inhibition of the activities of the centres, produced by the condition of fright—nervous shock.

After many operations about the abdomen these types of shock are present together in varying degrees. The exact treatment in any given case depends on the predominance or absence of any particular type from the group complex.

If hæmorrhage occurs after an abdominal operation it is nearly always recurrent. Except in the oozing of certain jaundiced patients, the correct treatment in recurrent hæmorrhage is to open the abdomen without loss of time and tie the bleeding point or points. The fact that it is never too late to attempt this, cannot be over-emphasised. I have seen a pulseless woman in Martha—[the gynæcological ward at St. Bartholomew's Hospital.—Ed.]—recover after an apparently hopeless operation performed for this purpose.

Shock, many text-books still tell us, is best treated by subcutaneous injections of strychnine and ether, and by the administration of brandy and coffee *per rectum*. This advice is the result of not clearly distinguishing between normal and exhausted centres. [The author here gives two diagrams showing the variations in the blood-pressure after an injection of strychnine. In the one case there was no shock; in the other there was considerable shock at the time the injection was made. In the former the centres reacted to the strychnine and the brandy, and the blood-pressure was increased. In the latter the exhausted centres made no response, and the blood-pressure continued to fall.]

He continues:—I think these diagrams support the view that the administration of strychnine and brandy in shock is useless. It may be positively harmful. Strychnine has the further disadvantage that it makes patients, in this state, very restless.

A drug to be useful in shock must be one which acts on the peripheral blood-vessels directly, maintaining the general blood-pressure until the centres can recover. Such drugs are ergot and its preparations and supra renal extract. My routine practice is to give ergotine citrate gr.  $\frac{1}{10}$  hypodermically every two hours until the centres recover, together with a pint of warm normal saline by the rectum every hour until the patient begins to return it. A drachm of a 1 in 1,000 solution of adrenalin is added to each pint of saline.

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