

# Medicine for Managers

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## Peritonitis

**Harry Houdini was possibly the world's greatest magician and escapologist. He had developed a routine as part of his act where he held his abdominal muscles tight and would then allow someone to punch his abdomen. Caught unprepared when a fan punched him, the blow burst his bowel and infected bowel contents leaked into the abdomen causing peritonitis. He died two days later.**

Peritonitis is inflammation of the peritoneum. The peritoneum is a thin layer of grey, glistening transparent tissue which forms a covering over the inner wall of the abdomen and also covers most of the abdominal organs.

It is smooth and slippery and there is a small amount of lubricating fluid between the two layers allowing the abdominal organs to move around in the abdominal cavity. In some areas there is a double fold of the peritoneum which carries nerves, blood and lymph vessels to and from the various organs.

If infection gets between the layers of the peritoneum it may rapidly spread round the abdominal cavity and symptoms quickly develop.

The most common are increasing severe, unremitting pain, a high temperature sometimes accompanied by rigors (violent shivering), nausea and dramatic reduction in urine output. Such symptoms, if they arise,

should be treated as an emergency because they indicate a serious illness.

Very commonly peritonitis occurs because of the rupture of an abdominal organ allowing infection to enter the peritoneal space. Such events include perforation of a stomach ulcer, a burst appendix, acute pancreatitis or a perforation of the bowel through trauma, inflammatory bowel disease (such as ulcerative colitis or Crohn's disease), and diverticulitis or sometimes through cancer.

Rarely infection may get access to the peritoneum as a result of liver cirrhosis or it may be introduced medically through imperfectly sterilised equipment when draining abdominal fluid or undertaking peritoneal dialysis. Sometimes abdominal penetration may be non-medical as during stabbing or shooting.

Diagnosis of peritonitis is commonly made through examination. The medical history would be followed by examination of the abdomen. It may be distended and manual

examination would reveal marked generalised tenderness. Listening with a stethoscope would reveal reduced or absent bowel sounds. The abdominal features would be accompanied by signs of a high temperature, rigors and the appearance of someone who was obviously unwell. Peritonitis is a potentially very serious condition and one in ten sufferers still die from it. Therefore, when diagnosed the patient is virtually always admitted to hospital.

In hospital the diagnosis may be confirmed with tests. Blood tests will confirm severe infection. Abdominal X-ray may demonstrate fluid present but can also show air, often under the diaphragm, produced by the bacteria and breakdown of intra-abdominal contents. Ultrasound can show the fluid and possible damage to organs but for more accurate diagnosis of the type of damage a computerised tomography (CT) scan may offer the best images.

Treatment of peritonitis involves stabilising the patient, preventing spread of the infection, destroying the causative organisms and treatment of the primary cause. Stabilisation may involve correcting fluid and biochemical disturbances produced by the acute infection.

The nature and sensitivity of any infection can be identified by withdrawing a small amount of the fluid from the abdomen using a fine gauge needle and culturing it. However, because this process takes some time, normally the infection is attacked with antibiotics that can destroy a wide range of bacteria.

They are normally administered intravenously initially. If the peritonitis has been caused by the perforation of an organ, it may be necessary, at the earliest opportunity to seal up the perforation surgically by, for example, oversewing a perforated stomach ulcer, removing a burst appendix or by removing a length of leaking bowel.

These are risky and difficult procedures because operating in an infected area risks spreading the infection further. Indeed the big risk with peritonitis is the spread of infection to the blood (septicaemia) and then on to other organs.

If not rapidly controlled the infection will go on to destroy tissues and organs. Patients with such serious infections appear desperately ill, with high temperatures, shaking, tachycardia (rapid heartbeat) and passage into septic shock unless the treatment is rapidly effective. If septicaemia and its complications develop intensive care unit support is essential to prevent collapse of the vital systems and death.

In the same year that Houdini died, 1926, the world lost Rudolph Valentino who developed peritonitis following the rupture of his appendix.

Perhaps not the end that the world's greatest lover might have wanted. On the other hand, being shot by a jealous husband might not have been good either!

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