insufficiency in the case described here is not clear. Hepatic insufficiency and right heart failure preceded both decrease of BP and renal insufficiency. Moreover histology of the liver biopsy specimen was consistent with a cardiovascular origin and seemed to exclude viral or drug-induced hepatitis. Furthermore Weil's disease, mushroom poisoning or CCl_4 poisoning and pancreatitis were all excluded either by the history or laboratory investigations. Vitamin B complex was given initially before thiamine deficiency could be proved.

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Pneumatic rupture of colon

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PNEUMATIC rupture of colon is a rare type of industrial accident, first reported by Stone in 1904. Since then there have been a few reports. The classical paper of Wyllys Andrews (1911) gives a vivid description of this injury. Invariably, this accident is the result of a practical joke, when the nozzle of a compressed-air hose is directed at the anal region of the victim. The rarity of the injury has prompted us to report the following case.

Case Report

S.L., 40-year-old male, working in the blast furnace of Bhilai Steel Plant, was admitted as an emergency on the afternoon of 18 June, 1970, complaining of severe abdominal pain and difficulty in breathing. About an hour earlier, while at work in the plant, two of his co-workers held him firmly and directed the outflow nozzle from a compressed-air pipeline towards his anal region and opened the release valve. He suddenly felt a sensation of 'blowing up' with acute abdominal pain and difficulty in breathing.

On examination, he was conscious but had agonizing abdominal pain. The respiratory rate

was 45/min, with very shallow, thoracic type of breathing. Pulse was 120/min and B.P. 90/60 mm Hg. The most striking feature was a grossly distended abdomen. On palpation there was acute generalized tenderness with board-like rigidity of abdominal wall. The percussion note was tympanitic and liver dullness obliterated. No free fluid was detected. Bowel sounds were absent. Examination of the perineum did not show any external injury. Rectal examination did not reveal any laceration or perforation in the anal canal or rectum. Some blood was noticed on the examining finger.

A clinical diagnosis of pneumatic rupture of colon was made.

Straight X-ray abdomen in erect position showed extensive pneumoperitoneum with compression and clear visualization of liver, spleen and gall bladder.

Operation. After initial resuscitation, a laparotomy was carried out through a lower left paramedian incision. As soon as a small opening was made in the peritoneum, the air whistled out and the distended abdomen collapsed like a pricked balloon. Concomitant with this deflation, the anaesthetist reported sudden improvement in the respiration and

cardio-vascular status of the patient. On further exploration, a perforation about 2 cm in diameter was found on the antimesenteric border of the lower portion of pelvic colon. A little faecal matter and some haemorrhagic fluid were present in the pouch of Douglas. In addition to the main perforation, there were about ten areas of serosal tears along the pelvic colon, both below as well as above the site of perforation. A few small haematomas in the wall of rectum and pelvic colon were also present. Careful inspection of the peritoneal cavity did not reveal any other injury. The perforation was closed in two layers and the areas of serosal tears were reperitonealized. After a thorough cleansing of the peritoneal cavity, the wound was closed in layers with a corrugated drain at the site of perforation.

Postoperative recovery was quite uneventful and the patient was discharged 2 weeks after operation.

Discussion

This accident nearly always results from practical joking. The jet of compressed air need not be in contact with the body or even the clothing of the victim. The injury will occur so long as it is directed at the anus. As in the present case, the narrow stream of compressed air finds its way into the large bowel without causing any damage to the clothing or perianal tissues. Being well supported by surrounding tissues, the anal canal and rectum usually escape damage. The colon distends rapidly, resulting in serosal and muscular tears. Eventually the mucous membrane also gives way leading to perforation which may be multiple. The commonest site

of perforation as noted by Brown & Dwinelle (1942) is the pelvic colon, usually along the antemesenteric wall.

As in our case, the characteristic clinical features are sudden abdominal pain, a feeling of distension and respiratory distress. In the presence of a typical history and clinical findings, there should be no difficulty in making a correct diagnosis. The tremendously increased intraperitoneal pressure obstructs the venous return to the heart resulting in low blood pressure, a common finding in these cases. We believe that the difficulty we experienced in giving an intravenous infusion through a cut-down at the ankle in our patient was probably due to the same factor. The sudden ease of transfusion and improvement in the cardio-vascular status of the patient which resulted on making a small opening in the peritoneum was really dramatic. A similar type of perforation may rarely occur during sigmoidoscopy, especially under general anaesthesia.

Acknowledgments

Our grateful thanks are due to the Chief Medical Officer, Bhilai Steel Plant, for permission to report this case and to Mr Geevarghese, senior stenographer, for secretarial help.

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