

of invagination, this experiment would tend to prove that insufflation can be practised successfully in cases of invagination of several days' duration. This procedure should be employed as early as possible, in fact as soon as an invagination is suspected, as the results will be most satisfactory when it can be used before the invaginating process has been arrested by traction of mesentery, œdema, and inflammatory swelling of intussusceptum or plastic adhesions. I am almost convinced that its proper use within a few hours after the accident has occurred would be followed by almost uniform success, and at this stage would be attended by little or no risks. To rupture the peritoneal coat of a healthy intestine by inflation requires from eight to twelve pounds of pressure to the square inch, so that even an intestine weakened somewhat by the secondary lesions would not yield under a pressure sufficient to reduce the invagination. Before the inflation is made, the bowel below the obstruction should be thoroughly emptied by a copious enema. The patient should be placed in such a position that will afford most room in the abdominal cavity. If the hips are elevated, or, still better, if the patient is inverted, the abdominal viscera will gravitate towards the chest and thus render the inflation of the bowel below the obstruction much more easy and efficient. Rectal insufflation of hydrogen gas in the reduction of an invagination should always be made under the influence of an anæsthetic, administered to the extent of complete muscular relaxation. The pressure upon the rubber balloon should be uninterrupted, and should never exceed what will produce two pounds to the square inch in the distended bowel. Disinvagination by this method is effected by two distinct forces. In the first place, the steady elastic pressure of the gas distends the bowel between the sheath and the returning cylinder of the intussusceptum, which makes traction upon the neck of the intussusciens, while the column of gas by its elastic pressure against the apex of the intussusceptum acts as a direct reduction force. In order to accomplish the desired mechanical effect in a most satisfactory manner, the inflation must be made slowly and continuously, as when these precautions are observed there is less danger of rupturing the bowel than when rapid inflation is made under

the same pressure, but with interruptions, and the object of the inflation is more surely realized. The return of the gas is prevented most effectually by an assistant pressing the margins of the anus against the rectal tube. A small gutta percha female syringe makes the best rectal tube. A sudden diminution of pressure always distinctly felt by the assistant who compresses the balloon indicates either that disinvagination has been effected, or that a rupture of the intestine has occurred. It is exceedingly important that the surgeon should satisfy himself of the existence of a rupture, if this accident has occurred. The best way to recognize this complication is to continue the inflation under a pressure of not more than a quarter to half a pound to the square inch. If the invagination has been reduced by the inflation, the intestine above it will become gradually distended by the gas and the tympanites takes place first over the middle of the abdomen and above the pubes, ascending gradually as the inflation is continued, the area of dullness remaining the same but being transferred higher up. If the intestine has given way the gas escapes into the peritoneal cavity, and the existence of the accident is proved by the appearance of a uniform free tympanites with disappearance of liver dullness. In a recent case there is no danger of rupturing the bowel under a pressure of two pounds to the square inch; and in cases where the tissue of the intestinal wall yields under this pressure, the pathological conditions are such that a laparotomy is the only proper remedy; and the occurrence of the accident renders the indication for the performance of the operation imperative, without adding materially to its danger.

The value of rectal insufflation of air or hydrogen gas is well shown by the following two cases which recently came under my observation:

*Case 1.*—The first case was a child, two years of age, which had been quite ill for two days. The attack was sudden, attended by pain in the abdomen, occasional vomiting, slight distension of the abdomen, and tenesmus. Small quantities of fœcal matter came away with the injections that had been frequently given to correct the constipation. The tenesmus was usually followed by small mucous discharges tinged with blood. An elongated swelling could be plainly felt in the region of the transverse