

obstruction. A distinct sausage-shaped swelling could be felt in the region of the transverse colon, extending as far as the splenic flexure. While the child was held in an inverted position, warm water was injected into the rectum with an ordinary David-on's syringe. The ascending colon could be distinctly felt after distension, when suddenly in continuing the injection something was felt giving way, and the swelling disappeared quite suddenly. A normal passage from the bowels followed, and the child recovered without any further untoward symptoms. As will be shown further on, distension of the colon with water as a mechanical means of effecting disinvagination in its efficiency and safety is inferior to rectal insufflation of hydrogen gas or atmospheric air, and should be abandoned as a therapeutic measure in the treatment of invagination.

*Manual and Instrumental Reposition.*—As early as 1856 Kade succeeded in reducing a colic invagination in a woman by the introduction of the arm up to the elbow into the rectum and colon. This method of reposition would, of course, only be applicable in the treatment of adults and in invaginations within reach of the hand. The reduction of invagination by the use of an œsophageal sound, or, better, by a strong whalebone probe, the point protected by a sponge, should always be done with the greatest care and gentleness, for fear of inflicting an irreparable injury of the intestine damaged by secondary pathological conditions. It is said that Nyssen reduced successfully a low invagination by the use of an œsophageal tube. As in manual reduction, the use of such instrumental aids should be limited to invaginations in which the neck of the intussusciens can be reached in this manner, or as a preliminary effort in facilitating means by which complete reposition can be accomplished. For instance, in ileo-cæcal and colic invaginations, when the intussusceptum protrudes from the anus, a partial reduction by some such means is necessary before disinvagination can be completed by rectal inflation.

*Rectal Insufflation of Hydrogen Gas.*—Distension of the bowel below the obstruction with filtered air or hydrogen gas is the safest and most efficient means of reducing an invagination that has not been rendered irreducible by

great swelling of the intussusceptum or inflammatory adhesions. This method of reduction is far superior to rectal injections of fluids in overcoming the resistance offered by the invaginated portion of bowel on account of the greater elasticity of the substances employed, which makes it possible to exert an equal degree of reduction force, minus the force required in forcing a column of fluid as far as the seat of invagination. I prefer to use hydrogen gas to atmospheric air, as this substance is not only aseptic, but possesses important inhibitory antiseptic properties, qualities which would be of the greatest importance should the bowel be ruptured in an attempt at reduction. If atmospheric air is used, it should be filtered before it is injected. As gas can be readily forced beyond the ileo-cæcal valve, this method is applicable in the treatment of invagination in any portion of the intestinal canal; and as distension of the intestine below the seat of obstruction may prove successful in correcting the mechanical difficulties due to other causes, it should be resorted to both as a diagnostic and therapeutic measure in the beginning of all cases of intestinal obstruction in which a positive diagnosis of other forms of obstruction cannot be made without it. The *modus operandi* of this surgical resource can be most forcibly shown by the following experiment :

*Experiment 2.*—Large adult cat. Six inches of the ileum were invaginated into the colon. Frequent bloody discharges until the third day, when the abdomen was reopened and the neck of the intussusciens exposed to sight, so as to observe directly the mechanism of disinvagination by rectal insufflation of hydrogen gas. As soon as the colon was well distended, the adhesions at the neck of the intussusciens began to give way, and complete reduction followed under the continuous elastic pressure from below. The abdominal wound was again closed and dressed in the usual manner. The animal recovered completely, and was killed twenty-four days after the first operation. Abdominal wound well united. In the ileo-cæcal region, numerous adhesions around the portion of bowel which had been invaginated and subsequently reduced. As the force necessary to rupture the adhesions and to reduce the bowel produced no injury of any kind to the intestine below and at the seat