

## PERFORATED PEPTIC ULCER IN THE NEWBORN: REPORT OF A CASE WITH MASSIVE BLEEDING\*

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"IT IS SIGNIFICANT that only two cases of massive bleeding from peptic ulcer in children under one year of age followed by recovery have been reported."<sup>8</sup> This statement recently published prompted the reporting of the following case.

### CASE REPORT

Infant female was born on the Obstetrical Service, Fitzsimons Army Hospital, at 7:00 P.M., January 18, 1953; the first living child of a 19-year-old gravida II para 0 Negro female whose prenatal course had not been remarkable. Labor was difficult because of the fact that the cervix effaced slowly and delivery was accomplished by manual rotation with a low forceps extraction. Birth weight was 5 pounds, 10% ounces. The positive findings on physical examination at birth were those of a weak cry, poor Moro reflex and the usual amount of molding of the head.

The child was placed on routine neonatal care and the first suggestion of any difficulty was at 8:00 P.M. on January 20, 1953, when the child was approximately 48 hours old. The pediatrician was asked to see the baby because she had vomited some "coffee ground" material after nursing poorly. To examination, the infant was active, slightly jaundiced, and the abdomen was moderately distended. There were active bowel sounds present and rectal examination was negative. A gavage tube was passed into the stomach without any resistance, and at this time the child had an emesis of brown stained material.

CBC was within normal limits. A plain roentgenogram of the abdomen revealed a moderate amount of gas in the stomach, and the left side of the abdomen showed one or more loops of dilated bowel. From this film it was not possible to determine whether this was small or large bowel. There

was no gas noted in the region of the sigmoid or rectum; it was felt by the radiologists that these findings were consistent with the diagnosis of mechanical obstruction.

One-half hour later the infant vomited 65 cc. of bright red blood with clots and had very suddenly gone into profound shock. The abdomen became more distended and no bowel sounds could be heard. She immediately received 75 cc. of whole blood by syringe, with definite clinical improvement, good peripheral pulse, and the decision was made to explore the abdomen.

At 3:35 A.M. on January 21, 1953, when the child was 56 hours and 35 minutes old, the abdomen was entered through a right pararectus incision. When the peritoneum was opened, a considerable quantity of clotted and bright red blood presented. It was estimated that approximately 135 cc. of blood were removed from the peritoneal cavity. There was moderate distention of the small bowel and through the thin bowel wall could be seen intraluminal blood. Exploration of the abdomen was negative until the right upper quadrant was reached. Over the dome of the right lobe of the liver there was considerable clotted blood, and initial impression was that there had been a traumatic laceration of the liver. However, with the clotted blood removed, the dome of the right lobe of the liver was found to be intact, and was retracted for examination of the stomach and duodenum. Exposure revealed a 7 mm. perforation of the anterior aspect of the first part of the duodenum approximately 5 mm. distal to the pylorus, from which clear bile extruded. The perforation was repaired with interrupted vertical mattress sutures of No. 80 cotton, securing a tag of omentum over the perforation. With the perforation closed, two small Penrose drains were brought out through a stab wound in the right subcostal region from the right infra-hepatic space. The abdomen was closed and the patient was returned to the ward in fair condition. The child re-

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ceived 140 cc. of blood during the procedure and immediately postoperatively.

Postoperatively the infant was maintained on IV fluids and in addition was given penicillin, streptomycin, vitamin C and vitamin K daily. The evening of January 22, 1953, the child was started very cautiously on very small amounts of electrolyte and glucose solutions by mouth. She con-

January 24, 1953, being offered small amounts of electrolyte solution by mouth. A dilute "Alacta" formula was started on January 25, 1953, which she tolerated very well. This was increased slowly, both in strength and amount, and the rest of the child's hospital stay was uncomplicated. She was discharged February 26, 1953, in good general condition. Her weight was 5 pounds 14½ ounces.

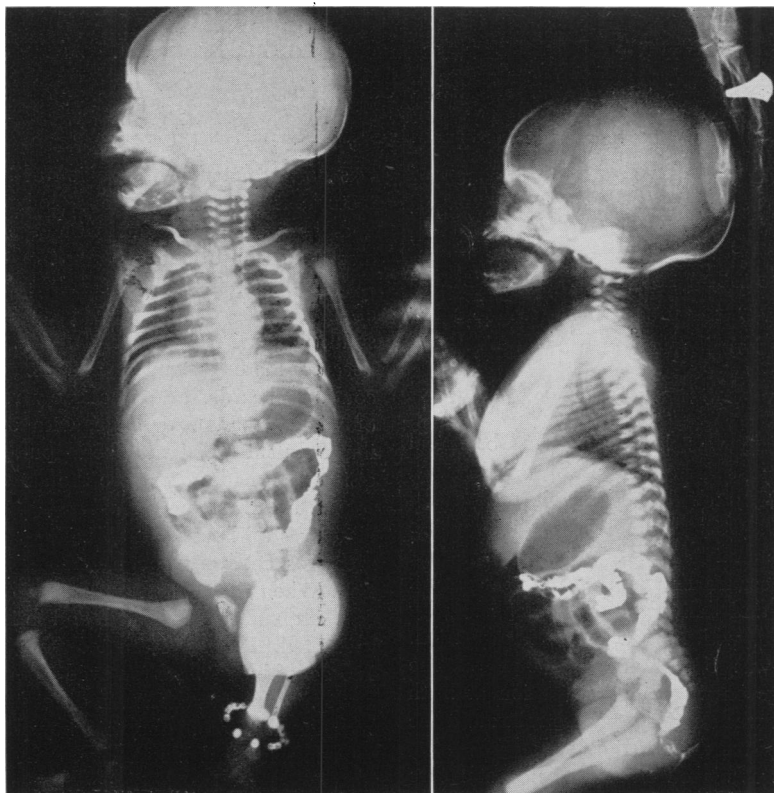


FIG. 1. (A and B) Note pneumoperitoneum under right leaf of the diaphragm and over dome of liver missed at initial reading. Lipiodol fills the colon, demonstrating small bowel distention.

tinued to do fairly well on this regimen, with the amount of fluid intake being increased rather slowly; however, at 11:00 P.M., January 22, 1953, the infant vomited some bile stained material that was not bloody. The rest of the general physical examination was negative except for the distention of the abdomen, but at the same time there was noted active peristalsis. The oral feedings were discontinued and the child was continued on parenteral fluids. By January 23, 1953, good bowel sounds again were heard, the child was active and the abdomen was less distended than it had been. She was restarted on oral feedings at 5:00 P.M.,

#### DISCUSSION

The problem of peptic ulceration in newborn and infants has been the subject of occasional review since Holt published his series in 1913.<sup>6</sup> Bird, Limper and Mayer,<sup>1</sup> Guthrie,<sup>4</sup> Hollander and Stark,<sup>5</sup> and McAleese and Steber<sup>8</sup> have reported peptic ulcers in newborn, infants and children in excellent summaries. From these it can be seen that peptic ulcer in the early age group is a relatively rare condition, but is

being recognized with increasing frequency. While approximately 375 cases have been reported in the literature, there are undoubtedly many others which have not been reported. The general incidence of duodenal ulcer in the newborn can be appreciated by the report of Bonnaire, Durante and Ecalle, who showed in 4000 autopsies of newborns only two cases of duodenal ulceration.<sup>2</sup> The disease in newborn and infants appears equally distributed between the sexes and has been reported in every age group. Lee and Wells<sup>7</sup> report a perforation in utero, and numerous authors report ulceration in the first few days of life. The case of Bird, *et al*, at 34½ hours of age, appears to be the earliest treated surgically with recovery.

The etiology of peptic ulceration in newborn and infants is unknown, but undoubtedly many of the adult factors pertain to the very young. The condition has been attributed by different authors to various causes, and more than likely is due to a combination of factors. External trauma, vascular, bacterial, chemical and neurogenic theories have been invoked to explain the etiology. It is of interest to note the more than casual relationship between difficult labor with intra-cranial damage, and intracranial new growths in the newborn, and peptic ulceration. Vonderahe reviewed 51 cases of gastroduodenal ulceration and noted well marked, localized, pathologic alterations of the brain or its membranes in 21.6 per cent of them.<sup>10</sup> Cushing wrote that trauma or new growths may produce a functional release of the vagus from paralysis of the antagonistic sympathetic fibers leading to hypersecretion, hyperchlorhydria, hypermotility and hypertonicity, especially marked in the pyloric segment.<sup>3</sup> Localized mucosal ulceration, questionably associated with the asphyxia of difficult labor, and the relative hyperacidity in the first few days of life as

reported by Miller, may have a significant role in the etiology.<sup>9</sup>

Ulcers varying in size from a few millimeters to 1.5 cm. have been reported, and multiple ulcerations may occur. As many as five separate and distinct ulcers have been found in the same infant.<sup>1</sup> In the newborn, ulcers are of the acute type. They occur so rapidly that there is usually no evidence of acute inflammatory reaction adjacent to the ulcer, and may be associated with necrosis and hemorrhage, including surrounding tissues, rather than with inflammation.

The condition is practically never diagnosed or suspected until hemorrhage or perforation occurs, because peptic ulcer symptoms in newborn and infants are atypical. Perforation is commonly accompanied or preceded by clinically detectable bleeding. Protocols commonly report sudden profuse hematemesis and death within a few hours, occasionally preceded by a day or two of black stools. There may be vomiting, loose stools and dehydration, to be followed suddenly without warning by bloody vomitus or melena. A previously scaphoid abdomen may become distended due to perforation of the ulcer. Early diagnosis is important in the treatment inasmuch as hemorrhage is usually, and perforation always, a surgical problem. Transfusion should be resorted to early, and must be given in adequate amounts to sustain the infant until an operation can be performed.

#### SUMMARY

As far as can be determined, the third case of bleeding peptic ulcer with perforation in a newborn with recovery is reported. Only one younger case, with recovery, that of Bird, *et al*, can be found. The importance of early diagnosis, supportive therapy and good nursing care is emphasized.

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## ANNOUNCEMENT

On February 18, 1954, the Buffalo Surgical Society will sponsor the Roswell Park Lecture, this year to be given by Dr. Isador S. Ravdin, John Rhea Barton Professor of Surgery, University of Pennsylvania Medical School, and Surgeon in Chief at the Hospital of the University of Pennsylvania.

Dr. Ravdin at that time will be awarded the Society's Gold Medal, being given for the seventh time, in honor of Dr. Roswell Park, Professor of Surgery, University of Buffalo, 1883-1914. Previous lecturer and recipients of the Medal are as follows: Dr. Allen C. Whipple (1948), Dr. Evarts A. Graham (1949), Dr. Dallas B. Phemister (1950), Dr. Frederick A. Collier (1951), Dr. Edward D. Churchill (1952), and Dr. Warren H. Cole (1953).