Short Segment Pyloric Narrowing

Pylorospasm or Pyloric Stenosis?

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Abstract. Short segment narrowing of the pyloric canal is a common finding in infants with chronic vomiting, and most often is due to pylorospasm. In such cases, it is transient, and offers no real problem in diagnosis. On the other hand, when it persists, a question arises as to whether it is due to fixed stenosis. Differentiation of the two conditions is difficult, but important, for while spasm can be treated medically, true stenosis requires surgical intervention. Just how to accomplish this differentiation is the subject of this report, and for the most part, centers around the infant's response to a therapeutic trial of antispasmodics. Patients with pylorospasm respond favorably, while those with fixed stenosis do not. Generally, these latter patients require pyloromyotomy, but in the occasional infant, so little muscle hypertrophy is present that we have found pyloroplasty to be the preferred procedure.

Key words: Pyloric stenosis - Pylorospasm - Gastric outlet obstruction - Infant

The problem of short segment pyloric narrowing, and whether it represents pylorospasm or fixed stenosis is common, but generally dealt with poorly. Indeed, in our experience, most of these infants first are considered to have chalasia, colic, or food allergy, and when they come to roentgenographic examination, the finding of short segment pyloric narrowing either is dismissed entirely or accredited to simple pylorospasm. The possibility that it might represent fixed short segment stenosis usually is not even considered; a definitely detrimental posture, for some of these infants do have fixed stenosis, and as such, require surgical therapy. With this in mind, we present our experience and method of dealing with these infants.

Case Material, Method and Results

The roentgenographic findings in 55 infants with short segment pyloric narrowing, measuring 1.0–1.5 cm in length, and persisting throughout the roentgenographic examination were reviewed. To enter the study, the roentgenograms in these infants could not demonstrate any of the classic roentgenographic findings of pyloric stenosis. More specifically, there could be no evidence of a muscle mass; only short segment pyloric narrowing could be present (Fig. 1). All of the infants initially were referred for roentgenographic examination because of chronic vomiting or regurgitation associated with feeding difficulties, failure to thrive, or actual weight loss (25% of cases). On physical examination, none of the infants had a palpable pyloric mass or "olive", and only 15% of the infants had projectile vomiting. Thirty-one (31) of the infants were males, and twenty-four (24) females.

Roentgenographically, as noted earlier, all of the infants demonstrated short segment pyloric narrowing, measuring no more than 1.0–1.5 cm in length. In the majority, however, the length was closer to 1.0 cm, and in all cases, the narrowing persisted throughout the entire study. Gastroesophageal reflux was demonstrated in 72% of the infants, and some degree of gastric outlet obstruction was judged present in all. Only in a very few instances was obstruction high grade, and in most cases, barium passed through the pyloric canal with deceptive ease. Nonetheless, obstruction was present, and to document its presence, we used the following criteria: if for any given bolus of barium being propelled through the pyloric canal, only 50% or less entered the duodenal bulb, obstruction was considered present. This assessment was made on repeated peristaltic rushes and recorded on videotape for re-examination. Once the infants met the foregoing criteria, they were subject to a therapeutic trial or test of antispasmodic therapy. The antispasmodic used most often was Bentyl, although any antispasmodic probably would suffice. The drug is administered for 10 to 14 days, in a dose appropriate for body weight, and the infant's response is then assessed. In our 55 infants, the results were as follows: 31 infants showed complete dissipation of symptoms; 18 infants showed no clearing of symptoms (i.e., complete test failures); and 6 infants showed a borderline response. The test was repeated in these latter 6 infants, and 2 showed improvement, while the other 4 continued to demonstrate a borderline response. These 4 then were considered to have failed the test and were added to the other 18 who failed the test initially. The end result was that 33 patients passed, and 22 failed the test. These 22 infants then became candidates for exploratory laparotomy.
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Fig. 1a–c. Short segment pyloric narrowing: small muscle mass. a Note the narrowed, but short, pyloric canal (arrow). Also note the impending peristaltic wave. b A little later, the peristaltic wave has progressed, but short segment narrowing of the pyloric canal (arrow) persists. c The peristaltic wave has almost dissipated, and yet the area of narrowing (arrow) is unchanged. Note that very little of the bolus of barium passed into the duodenum. At surgical exploration, this patient had a small (1.5 cm.) muscle mass which responded to pyloromyotomy

At surgical exploration, two sets of findings were noted. In the majority of infants (17 of 22), a small but definite pyloric muscle mass was identified, while in the remaining 5, only minimal thickening of the pyloric canal was detected. The mass, in the first group of infants, was clearly visible at laparotomy, and except for its size, was not different from the one seen with classic pyloric stenosis. This being the case, pyloromyotomies were performed in all of these infants, and all responded favorably. In the other five, no muscle mass was identified, and in fact, on visual inspection, their antropyloric regions appeared normal. With finger palpation, however, slight thickening of the canal could be detected, but this thickening was no more than 2–3 mm in diameter. Pyloromyotomies were performed in two of these infants, but were not curative. Because of this, pyloroplasties were then performed and both these infants and the remaining three in this group responded favorably to this procedure.

In those patients undergoing pyloroplasty, the pyloric canals were inspected by finger dilatation, and all were judged (subjectively) to be narrower than normal. There are no normal measurements for the pyloric canal, and most often, judgment as to whether it is narrow or not is accomplished preoperatively with roentgenograms, or intraoperatively with finger probing. Endoscopy was not performed in any of the infants, and no muscle biopsies were obtained in those infants demonstrating a small muscle mass. However, muscle biopsies were obtained in two of the other infants, and were normal.

Discussion

From the onset, it must be recognized that dealing with the problem of short segment pyloric narrowing in infants with chronic vomiting is difficult and controversial. Indeed, overall, the situation is handled poorly, and most infants remained undiagnosed. Clinically, these infants usually present with chronic vomiting, feeding difficulties, or failure to thrive. Vomiting is not projectile, and indeed, usually nothing more dramatic than repeated regurgitation. However, it is persistent and a problem, and initial clinical diagnoses often are those of food allergy,