Acta Clin Croat 2009; 48:47-50 Case Report

SYMPTOMS OF ANNULAR PANCREAS EXACERBATED BY PREGNANCY

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SUMMARY – Annular pancreas is a rare embryonal abnormality. Its manifestation in adulthood is often pinpointed with a substantial delay, which is most often attributed to pancreatitis, biliary pathology or dyspepsia. We present a case of a 28-year-old woman who had exacerbating symptoms of high bowel obstruction from 20th week of pregnancy, progressing after premature delivery. Diagnostic work-up revealed partial annular pancreas compressing the duodenum. Despite attempts of conservative treatment, her state deteriorated to such an extent that surgery was indicated and gastrojejunal bypass created. Her postoperative recovery was uneventful. In cases in which symptoms of high bowel obstruction in pregnancy persist and prostration occurs, we suggest close monitoring and a more thorough diagnostic approach. The question remains whether annular pancreas presents a cause of pathologic findings, a cofactor, or a mere accidental diagnosis in the development of superposed pathologies.

Key words: *Pancreas – abnormalities; Pancreatic diseases – surgery; Pancreas – surgery; Digestive system abnormalities; Case Report*

Introduction

Annular pancreas is a rare embryonal abnormality resulting from malrotation of the pancreatic ventral bud. It was first described by Tiedemann in 1818[1] and named by Ecker in 1862[2]. There are two peaks of incidence in newborns and during the fourth or fifth decade of life[3]. In adults, described symptoms are those of duodenal obstruction, peptic ulceration, chronic pancreatitis, and obstructive jaundice; coexisting congenital abnormalities are found in 20% of adult patients. The period from the onset of symptoms to the diagnosis varies from 1 to 16 years[4-6]. Most cases have been diagnosed by duodenography or gastroscopy, lately with ERCP, MRCP[7] and EUS[8]. Computer tomography (CT) scanning with oral contrast has proved to be more reliable in exclusion of other pathologies[9].

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Received November 21, 2008, accepted January 12, 2009

Treatments vary from medical alleviation of symptoms to surgical bypassing of duodenum, transduodenal sphincteroplasty, duodenojejunostomy, gastrojejunostomy, subtotal gastrectomy, and even Whipple procedure were tried. Duodenojejunal bypass remains the treatment of choice, which can also be performed laparoscopically[10,11]. In search of the literature, we found no report on another case of annular pancreas exacerbated to such an extent in pregnancy.

Case Report

A 28-year-old female patient presented to surgical emergency room with symptoms of high intestinal obstruction 10 days after cesarean section. From the 20th week of pregnancy, she was experiencing nausea and vomiting with progressive weight loss. In the 28th week of pregnancy, the child was delivered by cesarean section after unexplained preterm rupture of fetal membranes.

Four years before, she gave birth to her first child, born on term and with normal birth weight. After the

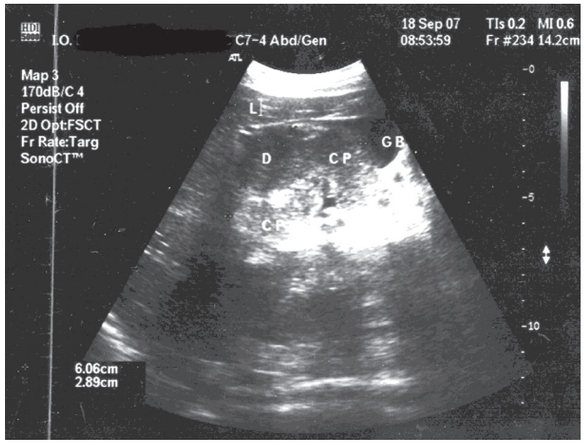

Fig. 1. Ultrasonography image of partial annular pancreas; CP, body of pancreas; GB, gallbladder; D, duodenum; L, liver.

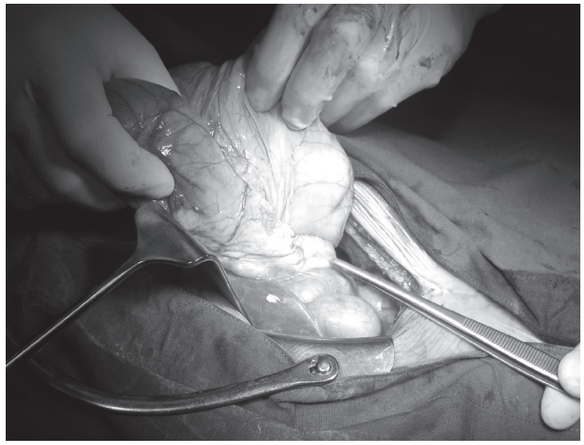

Fig. 3. Intraoperative finding of annular pancreas: normal pancreatic tissue partially encircling the duodenum.

first pregnancy, she had a short episode of reflux symptoms, which regressed on conservative therapy. She remained asymptomatic until the second trimester of second pregnancy.

Her symptoms did not regress postoperatively and an internal medicine specialist was consulted. Gastroscopy revealed duodenal stenosis with normal mucosa. Ultrasonography suggested the possibility of annular pancreas and symptomatic relief with omeprazole was attempted (Fig. 1).

However, the symptoms exacerbated further and the patient presented to surgical emergency service with symptoms of high intestinal obstruction 10 days after the delivery. At that point, she had lost 20 kilograms or one third of her weight. CT showed partial compression of the pancreas upon the duodenum, with agenesis of the body and tail (Fig. 2). Other interesting findings were polysplenia and azygos vein draining the area usually drained by vena cava inferior, which were described along with agenesis of the body and tail of (dorsal) pancreas as laparoscopic hysteropehy syndrome.

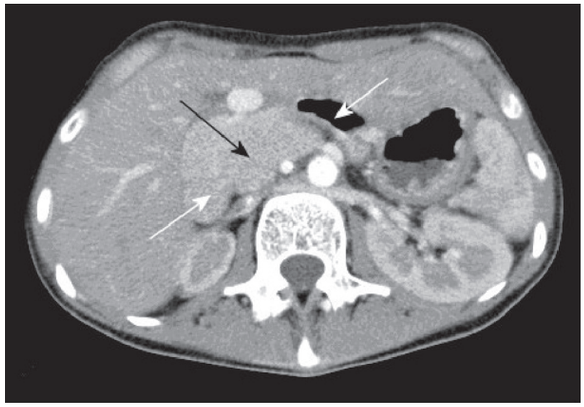

Fig. 2. Abdominal computer tomography with contrast in arterial phase showing pancreas with body and tail aplasia; white arrows, duodenum; black arrow, head of pancreas.

Despite vigorous correction of fluid losses and electrolyte abnormalities, the clinical state worsened and surgery was indicated. Partial annular pancreas compressing the duodenum was found intraoperatively and gastrojejunal bypass was performed. There was no evidence of pancreatitis or any other pathology that could explain the compression symptoms (Fig. 3).

Postoperative recovery was uneventful; the patient was discharged from the hospital on postoperative day nine. On follow up four months later, she was symptom free and gained 15 kilograms back. Her child is developing normally.

Discussion

The symptoms, diagnosis and treatment modalities for annular pancreas have been well described. However, factors for its manifestation remain secluded[12,13]. The onset of pancreatitis is the most common explanation; however, in this case it was not supported by laboratory data, appearance of the pancreas on imaging techniques, or macroscopically during the operation. In this case, we suggest the amplifying effect of two factors, physiological for pregnancy: hormonal changes and increased in-

tra-abdominal pressure may have been cofactors in triggering the symptoms. Progesterone is known to have relaxing effect on smooth muscles, thus slowing down peristalsis. Together with increased intra-abdominal pressure due to the growing uterus, it might have added to the obstruction. On the other hand, vomiting may often be underestimated as a symptom of underlying disorders since it may be a common occurrence in pregnancy affecting up to 70% of women. In a small percentage, 0.3% to 2%, vomiting itself may cause serious metabolic disbalance. In such circumstances, usually rare postoperative paralytic ileus after cesarean section, with a prevalence of less than 0.5%, might prove relevant[14]. Similar symptoms occur from duodenum compression by superior mesenteric artery; however, they are cleared by proton pump inhibitors. However, no evidence of such anatomic relations was found in this case[15]. Metabolic disbalance could not be corrected by conservative treatment since vomiting and subsequent electrolyte disbalance, compression of duodenum, swollen mucosa, atonic bowel and stomach amplified these adverse effects. Finally, fluid replacement and electrolyte correction were achieved almost instantly upon bypassing the obstruction. It remains unclear why the first pregnancy did not cause similar clinical picture. The first child was born on term with normal birth weight.

Bearing all this in mind, in case of persistent vomiting and obvious prostration we suggest close monitoring and a more thorough diagnostic approach.

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Sažetak

POGORŠANJE SIMPTOMA ANULARNE GUŠTERAČE USLIJED TRUDNOĆE

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Anularna gušterača je rijetka embrijska anomalija. Simptomi kojima se javlja u odrasloj dobi pripisuju se pankreatitisu, bilijarnoj patologiji ili dispepsiji, pa se do dijagnoze dolazi sa znatnim vremenskim odmakom. Prikazujemo slučaj 28-godišnje trudnice sa simptomima opstrukcije dvanaesnika koji su se javili od 20. tjedna trudnoće i pogoršali se nakon prijevremenog poroda. Obradom je postavljena sumnja na djelomičnu anularnu gušteraču koja pritišće dvanaesnik. Unatoč konzervativnom liječenju dolazi do pogoršanja općeg stanja i indicira se operacijski zahvat. Postavljena je gastrojejunalna anastomoza. Poslijeoperacijski tijek je protekao bez komplikacija. Kod dugotrajnih simptoma opstrukcije dvanaesnika u trudnoći uz pogoršanje općeg stanja predlaže se pomnije praćenje bolesnica i detaljniji dijagnostički postupak. Ostaje neriješeno pitanje je li anularna gušterača u ovom slučaju bila jedini uzrok, supostojeći čimbenik ili tek slučajan nalaz.

Ključne riječi: *Gušterača – nenormalnosti; Bolesti gušterače – kirurgija; Gušterača – kirurgija; Nenormalnosti probavnog sustava; Prikaz slučaja*