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Duodenal Atresia Presenting As Premature Labour: A Case Report

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ABSTRACT

The case of a twenty-four year old primigravida with severe abdominal pains and slight drainage of liquor, who was referred for investigation and further management is presented. Symphysiofundal height was greater than the estimated gestational age. Ultrasound investigation revealed gross polyhydroamnois and a large cystic mass in the foetal abdomen. The cyst measured 102mm x 78mm. There was also another cystic mass measuring 16mm in diameter seen posteriorly above the foetal diaphragm. No communication was established between the cysts. Two days later, the foetus was expelled prematurely and a distended foetal abdomen with epigastric fullness was observed. The foetus died within two hours after expulsion. A diagnosis of duodenal atresia was therefore established.

KEYWORDS Duodenal atresia, ultrasound, polyhydromnois, foetus.

Duodenal atresia represents a complete absence of the lumen of the normally patent duodenum. It is an example of intrinsic obstruction of the duodenal portion of the gastroin testinal tract. Failure of vacuolization of the proliferating duodenum, intrauterine vascular catastrophe and early intrauterine intussusception have been implicated as possible

Causes of duodenal atresia (Mandell, 2005) and (www.duodenalatresia.htm) Duodenal atresia is a relatively common atresia, occurring in I in every 10,000 live births (Awadh, 1999). It is commonly associated with trisomy 21 (Mandell, 2005). Duodenal atresia and stenosis can be surgically corrected by duodenoduodenostomy, duodenotomy, web excision and duodenojejunostomy with high operative survival rate of 95% (Grosfield and Rescoria, 1993).

Duodenal atresia is an easy ultrasound diagnosis to make because of the classic double bubble appearance (Chudleigh and Pearce, 1986), Miller and Laing, 1994), (Pilu et. al, 2000) and (Kacar and Seker, 2007)). Prenatal diagnostic ultrasound features of duodenal atresia include the double bubble sign, polyhydroamnois and other associated anomalies such as cardiac and skeletal defects. The double bubble appearance in the foetal abdomen represents the proximal fluid filled stomach and distal fluid-filled duodenum, proximal to the point of obstruction. Pilu et. al, (2000) observed that when obstruction results from a central web only a single bubble may be seen. The single bubble represents the fluid-filled stomach.

We present this prenatal ultrasound diagnosis of duodenal atresia to alert referring obstetricians and sonographers of its possible occurrence in our locality. This anomaly is rare in our locality; this being the first time it has been diagnosed in a decade of our practice.

CASE REPORT

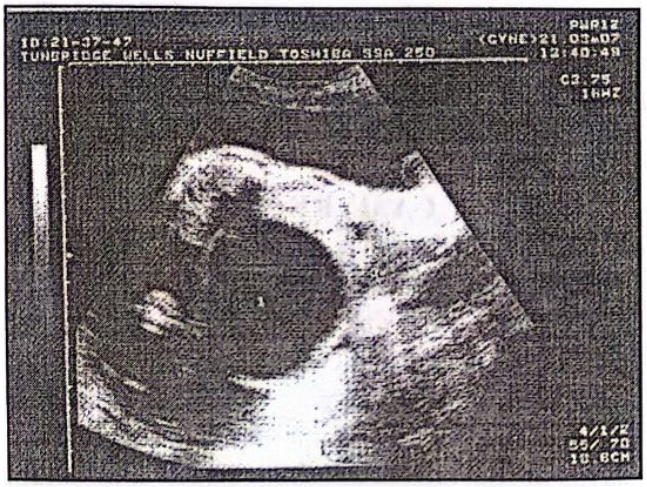
A twenty-four year old primigravida; patient identification number 21-37-47 was referred to the maternity section of Obstetrics and Gynaecology Department of Federal Medical Centre, Makurdi from a peripheral private medical practice. The patient complained of two days of severe abdominal pains and slight drainage of liquor. On examination, symphysiofundal height (SFH) was 35cm against an estimated gestational age (EGA) of 29 weeks from the patients last menstrual period. The patient was afebrile and the cervical os was three-centimeter dilated on speculum examination. A provisional diagnosis of premature labour was made and the patient was referred for ultrasound to estimate the true gestational age.

Obstetric ultrasound was carried out using a Toshiba SSA 250-ultrasound machine with a 3.75MHz curvilinear transducer. At ultrasound, gross polyhydroamnois was observed. There was a large cystic mass in the foetal abdomen. The cyst measured 102mm x 78mm. The cyst was compressing and displacing intraabdominal organs, making then inaccessible at ultrasound. There was also a smaller cyst located posteriorly above' the foetal diaphragm. The cyst measured 16mm in diameter. No communication was

demonstrated between the two cysts (see Figures lA and B). There was normal foetal cardiac activity. No cardiac malformation was observed. Active foetal body movements were slow and restricted. Placenta was seen posteriorly in the upper uterine segment. The biparietal diameter (BPD) was 78mm; giving an estimated gestational age of 30 weeks 6 days±8 days.

The patient was admitted for observation and further management. Two days after admission, the patient expelled a live foetus with distended abdomen with epigastric fullness. The foetus died within two hours of expulsion.

A final diagnosis of duodenal atresia was made and the patient was discharged a day, after expelling the foetus. The patient was stable and in good health at the time of discharge.



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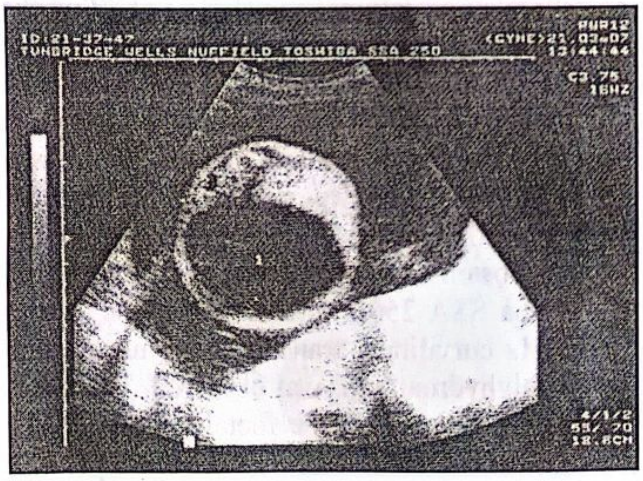

B

Figure 1A and B: Longitudinal and transverse sonograms of the foetal abdomen showing the cystic dilatation in the abdomen (1) and a smaller cystic dilatation above the diaphragm posteriorly (2).

DISCUSSION

Amniotic fluid is removed from the amniotic cavity by foetal swallowing and subsequent absorption by the foetal bowel (Chudleigh and Pearce, 1986) and (Awadh, 1999). When there is gastrointestinal obstruction swallowing may be impossible and absorption decreased. This results in maternal polyhydroamnois. In this case, we observed gross polyhydroamnois, which is associated with 400/0 of cases of duodenal atresia (Mandell, 2005) and other gastrointestinal atresias. Mandell (2005) also reports that one half of neonates with duodenal atresia or stenosis are born prematurely. The foetus in our case was prematurely delivered at 30 weeks gestational age. It is important to note that our patient was referred with complaints of severe abdominal pains and drainage of liquor, which are symptomatic of labour.

Duodenal atresia or obstruction presents at prenatal ultrasound as echo-free double bubble in the foetal abdomen associated with polydroamnois. Communication between these cystic dilatations can at times be demonstrated. These cystic dilatations can at time be demonstrated. These cystic dilatations corresponds to the fluid-filled stomach and duodenal. At times, when duodenal obstruction is caused by a central duodenal web only a single bubble may be seen as pointed out by Pilu et. al., (2000). In this case we found a single bubble occupying almost the whole abdominal cavity and displacing other intra-abdominal organs, making them inaccessible at ultrasound (see Fig. lA and B). We also observed a small bubble measuring 16mm in diameter posteriorly above the diaphragm. We could not however demonstrate a connection between it and the bubble in the abdomen. This second bubble is the oesophagus distended by amniotic fluid. Since we found only a single echo-free bubble measuring 102mm x 78mm in the foetal abdomen, we speculate that the duodenal obstruction in our case may have been caused by a central web.

Duodenal anomalies can be associated with other gastrointestinal and biliary tract abnormalities such as malrotation, oesophageal atresia, ectopic anus, annular pancreas, biliary atresia and vertebral anomalies (Mandell, 2005). There may also be urinary tract anomalies and cardiac defects. We did not find any in our case. Duodenal atresia is commonly associated with

trisomy 21 and therefore the foetus should be karyotyped to rule out this condition. No genetic studies were conducted because our hospital lacks the expertise and facilities to do so.

The importance of this report is that it is intended to alert sonographers and obstetricians on the possibility of the occurrence of this relatively rare atresia. When this diagnosis is made, the expectant mother should be referred to a health facility with paediatric surgery department. Early surgical correction, before the onset of electrolyte loss and fluid imbalance improves postoperative survival rate.

REFERENCES

Awadh A. (1999). Duodenal Atresia Foetal Medicine Unit. htm. Chudleigh P and Pearce MJ. (1986) Obstetric Ultrasound: How, Why and When. United Kingdom: Churchill Livingstone. Pp. 98 - 113.

Grosfield JL and Rescoria FJ (1993) Duodenal Atresia and Stenosis: Reassessment of Treatment and Outcome Based on Antenatal Diagnosis, Pathologic variance and Long-term Follow-up. World Journal of Surgery 17(3): 301 - 309.

Kacar A and Seker B. (2007). Duodenal Atresia: Case Report. www.thefoetus.net.

Mandell G. (2005). Duodenal Atresia. eMedicine specialties > Radiology> Pediatrics.

Miller FH and Laing FC. (1994). Duodenal Atresia: Case Presentation http://brighamrad .havard.edu/eduction/online/ted.ht ml.

Pilu G. Nicolaides K, Ximenes R and Jeanty P. (2000). Handbook of Foetal Abnormalities: Gastrointestinal Tract. Diploma in Foetal Medicine and ISUOG Educational Series. Pp. 1 -11. www.DuodenalAtresia.htm.