A rare association between dextrogastria, duodenal web, and intestinal malrotation in newborns

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Dextrogastria alone is an exceptional anomaly of situs inversus. Only few cases have been published in the literature, the majority of which concern adults diagnosed either during laparotomy for other pathologies or accidentally during radiologic exploration. The authors report this very rare case in a female newborn in whom an isolated situs inversus affecting only the stomach was disclosed during the radiologic investigation for bilious vomiting and feeding intolerance, revealing congenital duodenal stenosis and dextrogastria. During surgery, the association of the dextrogastria with the duodenal web situated in the second part of the duodenum was established. ***Ann Pediatr Surg*** **8:129–131 © 2012 Annals of Pediatric Surgery.**

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Case report

A full-term 10-day-old female newborn (2800 g) was referred to us for bilious vomiting starting since the first day of life, small amounts of greenish feces, and no weight gain. Her clinical history revealed right paramedian and epigastric distention. The results of full blood screening were within normal limits.

Radiologic investigations included the following: plane radiograph and upper gastrointestinal and abdominal ultrasounds. Results revealed a large right-sided stomach with a dilated duodenum (Fig. 1a, b, c and d), stenosis, and opacification of nonfixed intestinal loops. The baby was admitted to the neonatal intensive care unit and treatment with intravenous liquids with prophylactic wide-spectrum antibiotics was initiated.

Surgery was performed under general anesthesia using the supraumbilical transverse laparotomy procedure. On exploration, the right-sided stomach was covered partially by the liver, and the spleen was attached by the short gastric vessels on the left and anterior wall of the stomach just distal to the gastroesophageal junction. The duodenum, Treitz angle, and all the intestinal loops were in the middle and left side of the abdominal cavity; the coecum, appendix, and right colon were in their normal position with absence of any attachment to the posterior abdominal wall.

After evisceration of all the intestinal loops and liberation of the slight adhesions in the duodenojeujenal junction, an attempt at milking the gastric antrum and duodenum failed to give rise to good results for the evacuation of the gastric contents, and a clear difference in the caliber between the second and the third part of the duodenum was observed. The duodenum was opened longitudinally on the anterior wall; a nearly complete circular mucosal web was found between the second and third duodenal parts with just a small centrally located opening that was difficult to recognize. Excision of this web was accomplished by electric cauterization and the pyloroduodenal incision was closed transversally by one layer interrupted suturing using vicryl 5/0 sutures. An 8 Fr gastric tube was left in the stomach. An appendectomy was performed before closing the abdominal incision; progressive alimentation was started on the second postoperative day, and on the fourth day the patient left the hospital on complete oral alimentation. A new plane radiograph was obtained before discharge from the hospital to assure the patency of the duodenal anastomosis.

Discussion

The word dextrogastria in the medical dictionary is defined as follows: the displacement of the stomach to the right. It is a rare condition in which the gastric tube does not undergo it's physiologic rotation during the fourth week of the embryologic stage to situate the stomach in the left side of the abdomen. In the literature, this pathology constitutes a part of a wider malformation called situs inversus, which involves more than one organ in the thorax and the abdomen. Rates of occurrence of situs inversus are between 1/6000 and 1/8000 live births [1]; however, only few reports on cases of isolated dextrogastria have been published, the majority of which are on adult patients in whom dextrogastria is discovered accidentally during investigations for other pathologies, as dextrogastria itself is usually asymptomatic and may not be discovered during the entire lifetime. This condition is very rare with a reported incidence of less than 1/100 000 live births (Almy *et al.*) [2]. The presence of this pathology in a newborn is exceptionally rare. Even when discovered, its association with the duodenal web may not be fully explained. The presence of a symptomatic type of situs inversus [3] is usually detected during routine radiologic investigations; no treatment is necessary for this malformation, and only symptomatically associated pathologies are managed by treatments specific to them.

Conclusion

We believe that dextrogastria, especially the isolated and noncomplicated forms, is more common than that

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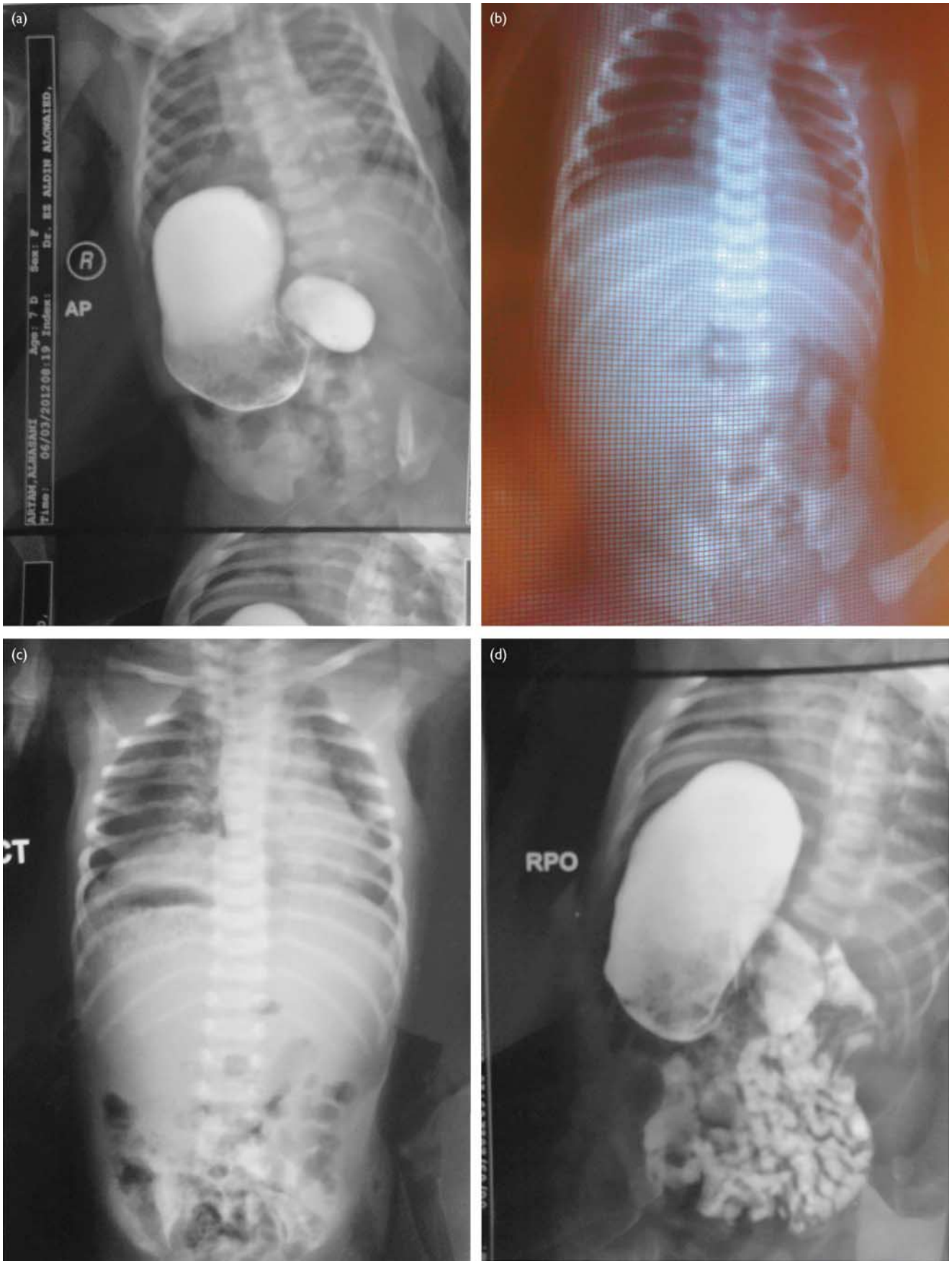
Fig. 1



(a, b, c and d) Plain-ray and upper gastrointestinal series showing dextrogastria.

reported in the literature, as only reports on complicated or investigated cases have been included in the published registry. Thus, encouraging research on symptomatic cases is necessary to understand this benign pathology with or without accompanying malformations and to determine its international distribution.

References

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