Congenital Duplication of the Gall Bladder:
Review of the literature and report of a case

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CONGENITAL DUPLICATION of the gall bladder is rare. The incidence of this anomaly is considerably less than that of the other segments of the extra-trepatic biliary system. Because of the rarity of gall bladder duplication, it has seemed desirable to report on this case.

Case Report

A 37-year-old Indian lady, gravida 14, para 13, gave birth to a baby. Several days later, the baby died of bronchopneumonia. At routine autopsy, the baby was noted to have complete duplication of the gall bladder, each gall bladder having a separate serosal covering. The cystic ducts joined at a Y junction and opened into the common bile duct through a single opening.

History

The diagnosis of complete duplication of the gall bladder is not new. Babylonian cuneiform characters record as an omen of victory a double gall bladder combined with gall stone in a sacrificial animal. Piling Elder mentioned the presence of a double gall bladder in an animal sacrificed at Angustus's victory at Actium in the year 31 B.C. The first case of duplication of gall bladder in man was reported by Blasivs (1674) and the first to be found at operation was reported by Sherren (1911).

Incidence

The incidence of this anomaly in animals is rather high. Because of this, Boyden attempted to determine the incidence of this abnormality in certain animals. He found that partial or complete gall bladder duplication occurred once in every eight cats examined and in the ratio of 1:28 in calves, 1:85 in sheep and 1:198 in pigs. Only 7 per cent of the duplications in cats were complete, whereas 52 per cent of those were in calves.

Boyden examined 9,221 autopsy cases and a series of 9,970 cases examined roentgeno-graphically; he found two cases of complete duplication in the former and 3 cases in the latter series. He gave the incidence in man as 1 in 4,000.

Millbouan (1941) reported the presence of 58 documented cases of complete duplication of the gall bladder.

Moore and Hurley (1954) could account for only 36 cases of total duplication of the gall bladder diagnosed at operation or autopsy. Of these, 27 were detected at operation, suggesting that the majority of double gall bladders will produce symptoms, usually in adulthood. Ryrberg (1960), in his review of the literature, noted the presence of 160 such documented cases.

Since 1960, several more have been added, mainly from non-English speaking countries and the purpose of this paper is to put on record yet another case of complete duplication of the gall bladder.

Aetiology

There are various theories as to the development

of the accessory gall bladder. The most probable explanation for the development of the accessory gall bladder in **Vesicae Fellea Dvplex** lies in the chance outgrowth from the embryonic bile passages (common bile duct, the cystic duct and hepatic ducts).

The development of a bilobed gall bladder is due to the failure of complete canalisation of the gall bladder bud.

Discussion

The incidence of complete duplication of the gall bladder is very low and the figure given by Boyden is probably correct and has been verified by others.

The number of operations performed on the biliary tract is increasing and it becomes imperative that surgeons are aware of the various developmental anomalies of the gall bladder. A thorough search for the accessory gall bladder may save a patient a repeat operation.

With improved methods of radiological examination of the gall bladder, the prospects of making a pre-operative diagnosis are high, provided the developmental anomalies are borne in mind. Further, one gall bladder may be diseased and the other normal in which case oral cholecystogram will show normal concentration of the dye in the normal gall bladder. This finding can be very misleading as in Moore and Harley's case. Sometimes, the oral cholecystogram may fail to show up the gall bladders but an intravenous cholangiogram will, as in the case of Antoine, Leclerc and Segal.

Gall bladder duplication may give rise to several problems:-

(1) If one shows pathology and the other is normal, oral cholecystogram will be misleading and give rise to diagnostic difficulties.

(2) When two gall bladders are present and both pathologically involved, and if only one is removed, the presence of symptoms after cholecystectomy may pose a diagnostic dilemma.

(3) Variation in sex, position and the number of the structures may pose technical difficulties and the chances of damage to the ducts are increased.

Summary

A case of complete duplication of the gall bladder in an infant is described and the relevant literature is reviewed and discussed. Reference is made to the problems of diagnosis and surgery in complete duplication of the gall bladder.

Acknowledgement

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References

1. ANTOINE, M., LECLERC, M. AND SEGAL, R. (1957) – Vesicules double, *J. Radiol et. electrol.* 38:764.
2. BOYDEN, E.A. (1926) – The accessory gall bladder – an embryological and comparative study of aberrant biliary besides occurring in man and domestic animals. *Am. J. Anat.* 38:177.
3. MILLBOURNE, E. VEBER (1941) – Die doppelle Gollenblase, in Anschluss on Zivei bcobachtete Falle. *Acta Chir. Scandinan.* 84:97.
4. MOORE, Th. C. and HURLEY, A.G. (1954) – Congenital duplication of the gall bladder, *Surgery* 35:283.
5. SHERREN, J. (1911) – A double gall bladder removed by operation. *Ann. Surg.* 54:204.