

Abnormal location of the papilla of Vater: a cadaveric study

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We report a case of a male cadaver aged 72 years with an ectopic location of the papilla of Vater. The ectopic papilla was situated at the supero-posterior border of the 3rd portion of the duodenum at a distance of 0.9 cm from the limit of the 2nd and 3rd portions of the duodenum. The frequency of this anomaly fluctuates between 0 and 11.83% and when the papilla is located distal to its usual position the usual location is in the proximal 2 cm of the 3rd part of the duodenum. We refer to the possible difference in the papilla's location between patients and cadavers and call attention to the differential diagnosis with spontaneous or surgical fistulae.

Key words: papilla of Vater, ectopic location, importance

INTRODUCTION

As is well known from classical textbooks of anatomy, the common bile duct enters the duodenum at the ampulla of Vater half-way along the medial border of the 2nd part of the duodenum [1, 15]. The abnormal location of the papilla of Vater in the 3rd portion of the duodenum has only rarely been described [9, 15, 16, 24].

Although congenital anatomical abnormalities of the supra-duodenal portion of the common bile duct have received much attention in the surgical literature, we consider those of the termination of the duct to have been insufficiently stressed. The location of the duodenal papilla is of great importance to the surgeon when performing trans-duodenal exploration of the common bile duct or sphincterotomy and to the endoscopist when attempting retrograde cannulation of the ampulla. We emphasise the need for intra-operative cholangiography to identify the exact location of the papilla of Vater before surgical exploration of it.

CASE REPORT

During the period 1995–2002 we prepared and dissected the duodenum of 27 human cadavers, which were used for teaching purposes at the Department of Anatomy of the Medical School of the University of Thessalonica. We incised the lateral wall of the descending portion of the duodenum in order to find the papilla of Vater in 13 male and 14 female cadavers. To our great surprise we found a case of a male cadaver, aged 72 years, in which it was impossible to discover the papilla of Vater. We therefore extended our incision to the 1st and 3rd portions. After this expansion of the incision we located the duodenal papilla at the middle of the superior and posterior wall of the 3rd portion of the duodenum at a distance of 0.9 cm from the limit of the 2nd and 3rd portions of the duodenum (Fig. 1).

DISCUSSION

The duodenal papilla is usually located half-way along the postero-medial border of the descending

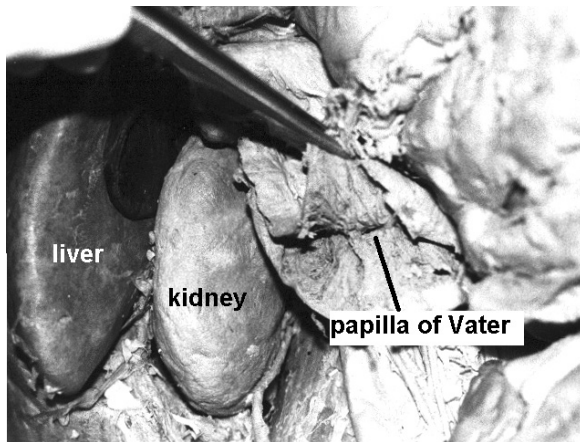


Figure 1. Location of the papilla of Vater at the middle of the superior and posterior wall of the 3rd portion of the duodenum at a distance of 0.9cm from the limit of the 2nd and 3rd portions of the duodenum.

duodenum. There is no doubt that some congenital abnormalities in the location of the papilla do exist. Thus there are reports that the termination of the common bile duct may be situated at the posterior wall of the stomach [26] or beneath the cardiac orifice of the stomach [4]. The distance of the papilla of Vater from the pylorus may vary from 80 to 120 mm [23].

Various anatomical textbooks give comparable locations for the papilla, such as 7–10 cm below the pylorus [7], 8.7–10 cm beyond the pylorus [2] and 8–10 cm from the pylorus [27]. There have been reports of abnormal positions of the duodenal papilla in the posterior wall of the duodenal bulb [5] and in a duodenal diverticulum [6, 19]. According to Ishizuka et al. [10], intra-luminal duodenal diverticula are sometimes associated with malpositioning of the papilla of Vater.

Very rarely the papilla of Vater is located in the 3rd portion of the duodenum. Dr. Mallet-Guy, in a personal communication with Dr. Wood [28], claimed that he had performed over 5,500 operative cholangiograms and had never found such variation in the position of the papilla. Champeau reported only one case of ectopic papilla in the angle between the 3rd and 4th portions of the duodenum [25]. Caroli [3] and Wood [28] also referred to only one. In a series of 194 cadavers Lurje that the common bile duct entered the upper surface of the beginning of the 3rd portion of the duodenum 16 times (8.25%) [16]. Kantor et al. [11] presented 112 operative cholangiograms and indicated that in 3 instances the papilla was located at the junction of the 2nd and 3rd portions and in only one instance was the papilla in

the 3rd portion of the duodenum. Schwartz et al. [22], in a series of 122 operative cholangiograms, found the papilla in the 3rd portion of the duodenum 10 times (8%).

Keddie et al. [12] in a series of 120 operative cholangiograms, found that the papilla was located at the junction of the 2nd and 3rd portions of the duodenum in 13 patients (11%), at the proximal 2 cm of the 3rd portion in 13 patients (11%) and at the distal end of the 3rd portion in 1 patient (0.83%) [12]. Pereira-Lima et al. [20], in a review of 3,000 operative cholangiograms, found this anomaly in 3 patients (0.1%) [20].

Most reports of an abnormal location of the papilla of Vater refer to cadaveric findings, possibly because tissues are fixed and may be foreshortened. The high incidence of this anomaly in the series of Schwartz et al. [22] may be attributed to the highly selective series of cholangiograms that they studied. According to Wood [28], the greater number of instances given by Lurje of the papilla in the horizontal portion of the duodenum could be ascribed to ethnic differences. We may also observe that when the entry of the common bile duct is high (sub-bulbar) or very low (in the 3rd portion) in the duodenum, there is no intra-luminal oblique route [20]. A high incidence of abnormal location of the papilla is noticed in patients with congenital biliary dilatation. Li et al. [14, 15] found that the papilla of Vater in 67.8% of these patients was distal to the descending portion of the duodenum.

Abnormal location of the papilla of Vater in the 3rd portion of the duodenum has also been described in association with a congenital duodenal diaphragm [13].

Hadfield suggested that the position of the papilla might vary during duodenal peristalsis [8]. To investigate this possibility Keddie et al. [12] reviewed 10 patients during postoperative t-tube cholangiography. In 3 patients no movement of the papilla was observed and in the remaining 7 patients no conclusions were reached, since the radio contrast material failed to outline the distal part of the common bile duct during duodenal peristalsis. These observations, although not conclusive, suggest that no significant movement of the papilla occurs.

Awareness of the anatomical variations in the location of the papilla is very important to the biliary surgeon. Poppel described one case of carcinoma of the papilla in which this diagnosis was ruled out because the suspicious defect was not in the expected location [21]. Moreover, the differential

diagnosis with spontaneous or surgical biliary fistulae is very important and in such cases one should resort to the administration of morphine for the differential diagnosis independently of a history of biliary symptoms or cholangiitis. Barium reflux is suppressed when it depends on an anomalous position of the papilla, even when it is otherwise intact [12].

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