Vascular variations in abdomen, face and neck in a single cadaver

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Abstract

During Routine dissection at Bankura Sammilani Medical College, multiple vascular variations were detected in a cadaver of 60 years aged female. Variation in formation of hepatic portal vein was present as union of splenic vein with the common trunk formed by Superior mesenteric vein & Inferior mesenteric vein. Second variations were in unilateral facial vessels, where the right facial artery terminated as superior labial artery and the right common facial vein drained into the External jugular vein.

Key words: inferior mesenteric vein, facial artery, facial vein, posterior triangle

Introduction

The drainage territory of Hepatic Portal vein (HPV) is from lower third of the oesophagus to halfway down the anal canal and from spleen, pancreas & gall bladder. HPV breaks up into hepatic sinusoids and drains blood to inferior vena cava through the hepatic veins. Level of formation of HPV is in front of body of L2 vertebra behind the neck of Pancreas anterior to Inferior vena cava through convergence of superior Mesenteric vein (SMV), & splenic vein (SV). Approximate length of HPV is 8cm and lies obliquely to the right. Inferior mesenteric vein (IMV) drains into SV and then the HPV on its way to the liver after receiving blood from descending colon and sigmoid colon.

Facial part of facial artery (FA) begins from antero-inferior angle of masseter. Course of this in the face is tortuous to accommodate the mobility of the structures through which it passes, runs antero-superiorly to a point 1.5cm from the angle of mouth then ascends more vertically to end near the medial angle of eye anastomosing with dorsal nasal branch of the Ophthalmic artery.

The Retro-mandibular vein is formed within substance of the Parotid gland and is divided into anterior and posterior division. Facial vein (FV) drains to Internal Jugular Vein through common facial vein (CFV) which is formed by union of FV and anterior division of Retro-mandibular vein. Posterior division unites with the posterior auricular vein to form the external jugular vein (EJV) on the surface of sternocleidomastoid (SCM) muscle, behind the angle of mandible and below the parotid gland. EJV drains to subclavian vein behind the clavicle in the Posterior Triangle crossing the SCM muscle in the neck.

Case report

Routine dissection at Bankura Sammilani Medical College of a 60 years old female revealed vascular variations in abdomen, face and neck. In the abdomen the IMV joined with SMV at the lower border of junction of body and neck of the Pancreas to form a common trunk of 1.14cm in length [Fig-I]. The angle between SMV and IMV measured 41.72º. The SV united with this common trunk making an angle of 146.63º to form Portal Vein behind the neck of Pancreas.

In the face of same cadaver, the tortuous right FA terminated as Superior labial artery (SLA) [Fig-II].

FV of the same side was conventionally posterior to the FA and after crossing the base of the mandible joined with the anterior division of Retro-mandibular vein to form CFV and drained in the EJV instead of Internal...
Jugular vein. EJV terminated in Subclavian vein in the Posterior triangle of the neck normally [Fig-III].

Discussion

Four types of variations for HPV were described by Couinaud. In Type-I SMV joins with common trunk formed by SV and IMV, Type-II SV unites with common trunk formed by SMV and IMV, and Type-III the tripod convergence formed the HPV, Type-IV IMV confluences both with the SV and SMV. IMV commonly terminates in SV, incidence 60% or in the SMV, incidence 40%. Incidence of Type-II recorded 24%, 29%, 29.3% and 53%. Our case is Type-II variation which can be explained embryologically.

In the foetal life the SMV drains blood from the mid gut to the left vitelline vein. In the later stage IMV which is developed in situ in the hind gut region, joins with the SV which then drains into the left vitelline vein slightly at the higher level of SMV due to herniation of mid gut. In our case IMV joined with SMV directly instead of joining with SV and then drained to left vitelline vein.

FA predominantly terminated as lateral nasal artery in 49% cases and predominant transverse facial artery with undetectable FA in 5% of cases which were described by Lohn et al. Tubbs et al. reported a case of enlarged transverse facial artery with the agenesis of facial artery. Five types of variation of FA from Type A to E were described by Loukas et al. according to which our case is type C where FA terminated as SLA. Bayram classified the variations of FA in foetuses into three groups in which Type-II is termination of FA as SLA.

FV terminated in EJV as reported by Choudhury et al and Prakash et al. Deviation is more common in veins than arteries. Termination of FV into the EJV is preponderance in the right side which is same in our case.
FV variation is embryologically explained by persistent anastomotic channel between the primitive linguo-facial vein and secondarily developing EJV.  

Conclusions

The surgeon must be aware of the variation of hepatic portal vein while performing abdominal surgery, oncologic and imaging procedures. Knowledge of variation of facial artery is important during oro-facial or plastic surgery even during intra-arterial chemotherapy in head & neck malignancies. Knowledge of facial venous variation is important to avoid undue bleeding during superficial neck surgeries.

References


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