A Clinical Observation to Diagnose Parotid Hemangioma

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Abstract A clinical observation to diagnose parotid hemangioma is presented in this article. A hemangioma can be made to distend by blocking its venous outflow. If a distended hemangioma is located within the parotid gland, it stretches the parotid capsule. Thus application of pressure over parotid venous outflow causes the hemangioma to bulge, thereby stretching the parotid capsule. It makes the outline of the gland clinically apparent. This observation is useful to differentiate a hemangioma present in the parotid gland from one that is placed outside the gland like an intramuscular hemangioma of the masseter muscle or internal jugular phlebectasia.

Keywords Parotid hemangioma · Parotid venous outflow · Intramuscular hemangioma of the masseter · Internal jugular phlebectasia

Clinical Examination

A 40-year-old female presented with a swelling in the right parotid region for 1 year duration. Local examination

revealed a diffuse spongy swelling of 5×5×1 cm in the right parotid region, extending from tragus to a level 5 cm below the tragus and from the anterior border of sternocleidomastoid to 3 cm in front of the tragus. It was hemispherical in shape, with a smooth surface and ill-defined margins. There was no discoloration of the skin over the swelling. The ear lobule was elevated. The hollow below and behind the ear lobule was obliterated. The swelling was soft in consistency and was compressible. On bending the head down, the size of the swelling increased in size ('turkey wattle' sign). On applying pressure over both external and internal jugular veins simultaneously the swelling in the parotid region became more prominent. (See Figs. 1 and 2)

This is even more clearly demonstrated in the video available on the online version as "Parotidhemangioma_BhavaniRao_Tushi.wmv". The skin was pinchable. The swelling was not bidigitally palpable. The parotid duct was normal and no abnormal discharge like pus or blood was seen extruding from its opening. There was no evidence of facial nerve palsy. The preauricular, parotid, submandibular and deep cervical lymph nodes were not palpable. Movements of the jaw were normal. There was no evidence of vascular malformations in other parts of the body.

CT neck, MRI neck and color Doppler suggested right parotid hemangioma [1]. See Fig. 3.

Management

Conservative parotidectomy was performed. Both superficial and deep lobes were removed.

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Fig. 1 Before applying pressure on jugular veins

Both were involved by the hemangioma. Postoperatively, a mild facial weakness on the same side was noticed. This recovered completely within 2 weeks. Histopathologically, the specimen showed blood vessels encapsulated in a connective and fatty tissue framework.

Discussion

The parotid gland lies beneath the skin, in front of and below the ear. It is contained within the investing layer of the deep fascia of the neck, called the parotid fascia. The superficial layer is dense and tough in comparison to the deep layer, which is thin and weak; the dense superficial layer is closely adherent and sends fibrous septa into the gland and is attached to the zygomatic arch. The deep layer is firmly attached to the styloid process, mandible and tympanic plate, blending with the fibrous sheaths of related muscles. The fascia extending from the styloid process to the mandibular angle forms the stylomandibular ligament,

Fig. 2 After applying pressure on jugular veins

Fig. 3 MRI of parotid hemangioma with phlebolith

which intervenes between the parotid and submandibular glands [2].

The superficial temporal vein enters the superior surface of the parotid gland. It receives the maxillary vein to become the retromandibular vein. Still within the gland, the retromandibular vein divides. The posterior branch joins the posterior auricular vein to form the external jugular vein. The anterior branch emerges from the gland to join with the facial vein, thereby forming the common facial vein, a tributary to the internal jugular [2–5]. Thus, the venous outflow of the parotid gland is through both internal and external jugular veins.

Hemangioma is a soft tissue swelling that can occur as a single lump or diffuse swelling in the parotid region [6–8]. It is usually soft but can also have a firm or sponge-like consistency. Pain is usually absent unless complicated. It is very rare to observe bluish discoloration of the skin with cavernous hemangioma, which is a characteristic feature of benign hemangioendothelioma. The lesion may become more prominent on contracting the masseter muscle.

The lump may be engorged when the head is bent forward or when the patient lies flat (turkey wattle sign) [9]. The presence of calcified phleboliths on radiological imaging is a characteristic finding of cavernous hemangioma of the salivary gland [1]. See Fig. 3.

A method is proposed here to make out a cavernous hemangioma located inside the parotid gland. The clinician stands in front of the patient and requests him/her to keep the neck muscles in a relaxed state. The examiner then occludes both jugular veins by placing the thumb of the opposite hand across them (Fig. 2). Care should be taken to avoid carotid bulb massage or compression. When a hemangioma is present within the

Fig. 4 Pressure over both external and internal jugular veins causes the hemangioma to be engorged and the gland outline to be made out

parotid gland, application of pressure over both external and internal jugular veins causes the lesion to get engorged. Since the lesion is within the parotid gland which itself is enclosed in the parotid fascia, the outline of the gland will be distended and clinically appreciated (see Fig. 4) [10].

If the hemangioma was placed outside the gland, there would not be any increase in size.

Thus, this observation is useful to differentiate a hemangioma present within the parotid gland from one that is placed outside the gland. Examples of the latter includes intramuscular hemangioma of the masseter muscle and hemangioma in the infratemporal fossa [7, 11]. The observation may also be helpful to differentiate parotid hemangioma from internal jugular phlebectasia [12].

Furthermore, this assumption has to be tested on several patients if it were to be accepted as a valid clinical sign. Considering the fact that the cavernous hemangioma of parotid gland is a rarity [13], it is unlikely that a single hospital can accumulate sufficient number of subjects within a reasonable span of time to try out the technique. This may be the reason for not discovering such a sign so far. Making the clinicians aware of this method to diagnose a parotid hemangioma, it is hoped to stimulate some of them to experiment with the idea and document their findings preferably in a multimedia format. When the pooled data is accumulated in sufficient volume, it may be possible to analyze and create a new clinical sign.

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Conflicts of interest None

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