Abstract
Hemangioma of parotid gland in adult is an uncommon condition and may pose difficulty in diagnosis when they present with unusual manifestations. Pigmentation of skin, pulsatile nature and presence of phlebolith radiologically makes diagnosis of vascular lesion uncomplicated. But when none of these signs are present, thorough clinical examination and meticulous imaging investigations are warranted to differentiate the lesion from more common conditions of the area. We have presented such one lesion and its clinical examination, Cone beam computed tomography Sialography, Ultrasound and Magnetic Resonance Imaging diagnostic features in this case report.

Introduction
Hemangiomas are vascular malformations characterized by increased proliferation and turnover of endothelial cells. Hemangioma of parotid gland is most common in paediatric population representing approximately 50% of parotid tumors in the first year of life showing involution with progress of age. Among 6% of salivary gland neoplasms arising in head and neck, 80% arise in the parotid gland and out of all parotid gland tumours, 80% are benign. [1] Hemangiomas account only for 0.4- 0.6% of all the tumors of the parotid gland and hemangioma of parotid gland particularly in adult is very uncommon with about 50 cases reported globally. [2] Diagnosis of this condition is based on clinical and imaging features, which occasionally may not be frank to provide straight forward diagnosis of Hemangioma. In such cases thorough clinical and imaging investigation helps in diagnosing the condition.

Case Report
A 25 years old female patient with a painless swelling of the right parotid gland reported to our department of Oral Medicine and Radiology. She noticed a swelling below the right ear 6 months prior to reporting and had observed the growth increasing in size for 2 months following which it was constant in size and there was no change in size associated with intake of meals. She was diagnosed at a local hospital with sialadenitis where she was treated for same and then referred to our hospital due to lack of improvement.

On examination, a diffuse, firm, non-tender, non pulsatile swelling of approximately 4.0x3.5x3.0 cm size was present in the right parotid region with raised earlobe. There was engorgement of the lesion when patient was asked to bent her head a little forward suggestive of positive turkey-wattle sign. (Figure 1) The lesion was non-pulsatile and attached to the underlying structures. Intra-orally the discharge of saliva from Stenson duct was normal and clear.

(Figure 1: Swelling of right parotid region. The swelling engorges when patient’s head is bent forward, a positive turkey-wattle sign.)

Plain radiographs did not reveal any findings, hence Sialography was carried out. In Cone-Beam Computed Tomography (CBCT) Sialography the extra glandular ductal anatomy appeared to be patent. It revealed intraglandular space occupying lesion pushing the ductal structure laterally. This created a ‘Ball in hand’ appearance. (Figure 2)
when the head is bent forward or the patient lies flat, is pathognomonic to the "turkey-wattle" sign which is demonstrated by lump getting engorged (Figure 2). Moreover, in 2-3% of cases, hemangiomas present along the Stenson's duct. Our case showed this typical Sialographic appearance.

Benign tumor by the typical appearance of 'ball-in-hand'. Sialography is a sensitive method in diagnosing the condition as it can show the characteristic appearance of the tumor. Common imaging methods used in case of parotid hemangioma are Sialography, Ultrasonography (USG), and MRI. Sialography is good for imaging the parotid gland as it shows complete filling of the extra-glandular Stenson duct (Figure 2: CBCT Sialography of Right Parotid Gland. 2A- Axial section shows complete filling of extra-glandular Stenson duct followed by displaced intra-glandular ductal components surrounding a central space occupying mass (Arrow). 2B- Coronal section demonstrates lateral displacement of ducts. (Arrow) 2C- Sagittal section also confirms the presence of space occupying mass within gland. All these three images give appearance of typical 'Ball in Hand' appearance. 2D Three Dimensional reconstruction of CBCT Sialography).

Based on the Sialographic image, diagnosis of a benign tumor of the right parotid gland was made with differential diagnosis as Pleomorphic adenoma. Magnetic Resonance Imaging (MRI) showed well defined heterogeneously enhancing lesion with T1 hypointensity and T2 hyperintensity, involving superficial and deep lobes. (Figure 3) Ultrasound showed heterogeneous predominantly hypoechoic cystic lesion and color Doppler showed hypervascularity.

A Fine needle aspiration cytology (FNA) revealed presence of blood components in hemorrhagic background and same findings were confirmed on two repeat FNA in the interval of a month. Based on Clinical findings, presence of space occupying mass in CBCT Sialography, Hypoechoic hypervascular nature of lesion on USG, Well defined heterogeneous contrast enhanced appearance on MRI and Haemorrhagic nature of FNA, diagnosis of Right Parotid Hemangioma was made. However as the lesion was asymptomatic and static in size, patient chose to opt out from undergoing surgery and was planned to undergo endovascular sclerotherapy.

Discussion:
Hemangiomas of parotid gland are rare in adults. They are characterized by asymptomatic, soft swelling below and/or in front of the ear lobule. When there is presence of red, bluish or purplish discoloration of skin, presence of pulsation while palpating the swelling and presence of phlebolith on imaging, suspicion of Hemangioma can be made. However, in the absence of such signs as in the presented case, diagnosis is not so straight forward particularly in adults and should be differentiated from parotid gland tumors like pleomorphic adenoma and Warthin's tumour. The low prevalence of Parotid hemangioma in adults, leads to its usual exclusion from differential diagnosis for parotid masses. The turkey-wattle sign which is demonstrated by lump getting engorged when the head is bent forward or the patient lies flat, is pathognomonic of parotid hemangioma. If the hemangioma lies outside the gland, there will not be any increase in the size. Our case presented with positive turkey-wattle sign.

Common imaging methods used in case of parotid hemangioma are Sialography, Ultrasonography (USG), and MRI. Sialography is good option in imaging lesions associated with salivary gland when the plain films give no information. In case of Hemangiomas the Sialography is a sensitive method in diagnosing the condition as benign tumor by the typical appearance of 'ball-in-hand' characterized by displacement of ductal structure by the central mass. Our case showed this typical Sialographic appearance. (Figure 2) Moreover in 2-3% of cases hemangiomas present along with phlebolith and may be confused with Sialolith.

In such scenario Sialography can help differentiating between these two heterotrophic calcifications. On USG, hemangiomas are heterogeneous hypoechoic lesions and Color Doppler US shows prominent vascularity associated with the lesion. MRI is regarded as the best imaging method for evaluation of parotid hemangioma. On MRI it appears as well-defined, lobulated, homogeneous T1 hypointensity and gross T2 hyperintensity with variable extent of vascularity. The lesion may appear heterogeneous when small focal areas of fat replacement are present. Extent of the lesion is well demonstrated by contrast-enhanced examination.

The presented case had heterogeneous appearance in contrast enhanced images. (Figure 3) FNAC is the final procedure for a definitive histologic diagnosis which demonstrates blood components in hemorrhagic background. Surgical excision with preoperative super selective embolization of vascular malformation in head and neck region is one of the established clinical practice. However, hemangioma in patients unfit or unwilling for surgery is often treated conservatively using steroids, interferon, sclerotherapy, intralesional alcohol injection and compression therapy. In Presented case patient was planned to be treated conservatively with sclerotherapy and is kept under regular follow up.

Conclusion
Hemangiomas of parotid glands are rare in adults and poses difficulty for clinicians to reach a diagnosis based on clinical and/or imaging findings. In presented case diagnosis of parotid hemangioma based on clinical and imaging features is emphasized so as to distinguish the entity from more common lesions of the region.

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