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RESEARCH ARTICLE

PAROTITIS ON A MISPLACED GLAND: A CASE REPORT

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Abstract

An ectopic parotid gland is a rare congenital anomaly due to an aberran t embryologic migration. This condition is usually asymptomatic, however, due to complications, it may become symptomatic causing functional complications especially with recurrent infections.Cases of parotitis on an ectopic parotid gland are more uncommon. We report the case of an 11-year-old child admitted for a right cheek swelling, with both ultrasound and CT scan revealing an ectopic parotid gland with parotitis. This caseincreases awareness for early diagnosis of this condition leading to appropriate management. It highlights the role of imaging in differential diagnosis from other soft tissue anomalies in order to avoid unnecessary invasive procedures.

Introduction:-

The parotid glands are the largest salivary glands, developing between the 4th and 8th gestational week. Any disruption of its migration will lead to an ectopic location. This condition may be discovered incidentally through imaging, or may present as an asymptomatic mass, or develop complications such as parotitis.We present the case of at 11-year-old patient admitted for a swollen cheek evolving for a week, suspected to be cellulitis or a malignant mass, to which an ultrasound and CT scan revealed the presence of an ectopic right parotid gland to the cheek complicated with parotitis.

Case description:-

An 11-year-old child, with no specific medical history records, was admitted to the ER for a right cheek swelling, that has been evolving for about a week before admission. Clinical exam showed no fever, and no skin inflammatory signs. There was a palpable mass, and the clinician requested a CT-scan urgently due to suspicion for a tumor mass or a cheek cellulitis. It revealed an empty right parotid lodge with visualization of what resembles a parotid gland in the right cheek consistent with an ectopic parotid gland (Figure 1), a complementary ultrasound, showed a swollen heterogeneous ectopic parotid gland, with a “tigered” pattern (Figure 2), suggestive of parotitis on an ectopic parotid gland.

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« [insert Figure 1.] »

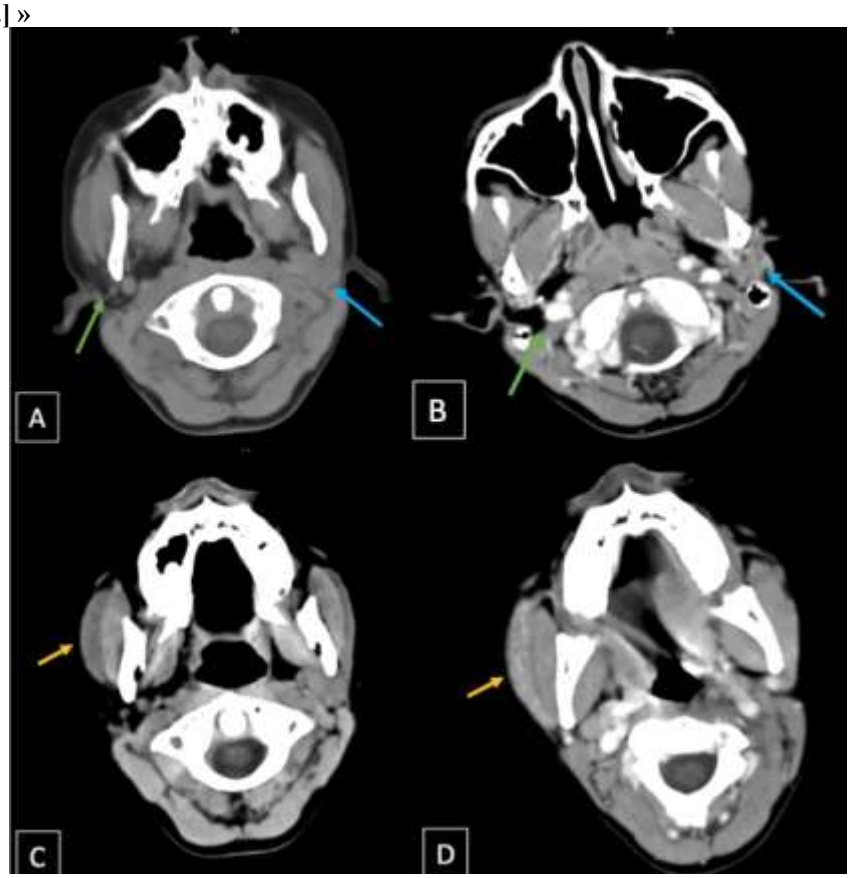

Figure 1: Axial images of a facial CT scan before and after contrast injection showing an empty right parotid gland fossa (green arrow A and B), compared to the left parotid fossa containing a normal parotid gland (blue arrow A and B). Images C and D reveal the presence of an ectopic parotid gland in the cheek, swollen, with heterogeneous enhancement compatible with a parotitis on an ectopic gland (yellow arrows).

« [insert Figure 2.] »

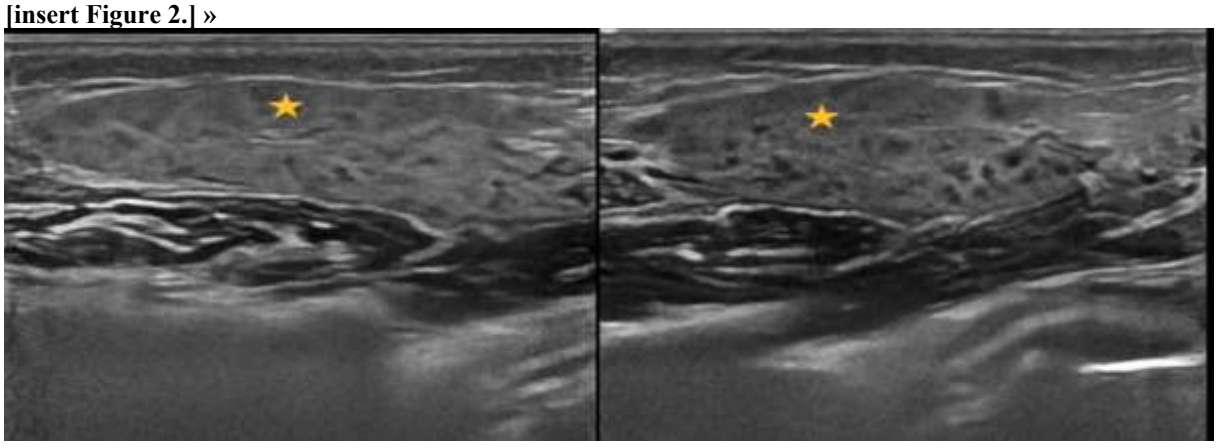

Figure 2: Ultrasound images of the right parotid gland, located in the cheek, revealing a heterogeneous aspect with tigered appearance consistent pour parotitis.

Discussion:-

An ectopic parotid gland results from an abnormal migration during embryogenesis, in which the salivary gland primordia fails to reach its normal anatomical position. The parotid glands develop between the 4th and 8th gestational week, in the primitive oral cavity from ectodermal invaginations, to migrate later on to their final

position which is anterior and inferior to the ear. (Siddhi Chawla, Mohnish Bothra, 2023) Some genetic factors, or lymphatic tissue interactions may cause disruption in its migration leading to an ectopic parotid gland, either placed in the buccal, submandibular or cervical regions. (Soheila Borji, Pegah Moharrami Yeganeh, 2023) Various ectopic sites have been documented including the mandible, middle ear, pituitary gland, thyroid, larynx with the most frequent locations including the cheeks and cervical lymph nodes. (Jin Kai Soh et al., 2023) Only a few cases of ectopic parotid gland are reported in literature, making it a very rare presentation. Most cases are found incidentally through imaging or during surgical procedures for other reasons. (Shang Xie et al., 2021) A review of pediatric cases, revealed that diagnosis is most often made during infancy and early childhood, usually as an asymptomatic cheek swelling, or facial asymmetry, and only rarer cases revealed a bilateral ectopic gland. (Lulu Zheng et al., 2022)

Differential diagnosis includes: congenital vascular lymphatic or venous malformation, masseter muscle hypertrophy, parotitis, diffuse inflammatory conditions, and neoplastic lesions. (Shang Xie et al., 2021) Parotitis exceptionally occurs on an ectopic parotid gland. (Emilio J. Inarejos Clemente et al., 2018)Our case reveals a child presenting with an acute right cheek swelling. A CT scan revealing an empty right parotid fossa with the parotid gland located in the right buccal region.

Imaging characteristics of parotitis in an ectopic parotid gland are:

- Ultrasound: heterogeneous swelling of the parotid gland, with a tigered pattern, suggesting an inflammatory process.
- CT scan: Absence of the parotid gland in its usual fossa, with an ectopic location, a swollen aspect associated with soft tissue edema.
- MRI: is the preferred imaging modality for better assessment showing high T2 signal intensity and enhancement on areas with active inflammation. (François Chalard et al., 2022)

When the ectopic parotid gland is asymptomatic, awareness of its location is necessary, however, no treatment is required. A surgical treatment may be necessary in cases of recurrent infections or abscess formation, ductal obstruction causing functional impairment and in case of aesthetic concerns. (Lulu Zheng et al., 2022)

Conclusion:-

Ectopic parotid glands are rare embryological anomalies due to disrupted migration. It may remain undiagnosed for years or present as an abnormal asymptomatic swelling, however, in some cases it may become symptomatic or infected leading to parotitis. Recognition of an ectopic parotid gland through imaging is necessary to avoid misdiagnosis for a vascular or malignant lesion. MRI remains the gold standard for diagnosis, but in acute symptoms an ultrasound or CT scan may be sufficient.

Abbreviations:
US = Ultrasound
CT= Computed Tomography
MRI= Magnetic Resonance Imaging
ER= Emergency Room

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