

Pleomorphic Adenoma of the Parotid Gland: A Report of Recurrence

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ABSTRACT

Pleomorphic adenomas (PA) are benign tumours of the salivary glands predominantly affecting the parotid gland. Presenting as a painless swelling they may be slow growing or fast growing and rarely metastasise. They can grow into extensive sizes if left untreated. Surgical excision is the treatment of choice without causing injury to the facial nerve (FN). Recurrences may occur as well as malignant transformation in a small percentage of cases.

Key Words: Pleomorphic adenoma(PA), benign surgical resection, facial nerve preservation recurrence complications.

BACKGROUND

The parotid gland is the most common sight of pleomorphic adenomas. It is common in the third to sixth decade and in females with (2:1) female to male ratio (1). The term pleomorphic is based on its epithelial and connective tissue origin (2). PA present largely as asymptomatic swellings and are often well circumscribed. The vast majority are benign but malignant transformation occurs in 6% of cases (3). They may be slow growing (>10) years or fast growing (<3) years depending on patient estimate. Local recurrence may occur after surgical excision. We describe a large recurrent pleomorphic adenoma of the parotid gland in a male adult requiring surgical excision and its successful outcome with minimal untoward complications.

We also discuss the surgical complications that may occur and the factors that may lead to recurrences as well as preventive strategies. Concluding remarks relate to malignant transformation of PA.

CASE STUDY

The patient was a 33- year -old male who had travelled from Chad in North Africa. The country is undergoing civil insurrection and the patient was referred to a specialist unit with extensive experience in the management of tumours of the head and neck region. The patient had previous surgery to excise a tumour in the L. parotid in 2013 and now presented with a recurrence. A large tumour mass of the L. parotid had grown over a period of 5 years. It was painless but a source of worry and embarrassment as the disfigurement drew attention to his facial features,

See Fig. 1(a) and 1(b).



Fig.1(a)



Fig.1(b)

The patient was counselled and made aware of likely complications and that numbness and weakness on the side of the surgery can occur due to (FN) injury but efforts to preserve facial nerve function will be taken .

Routine blood investigations were normal and on clinical examination the tumour appeared encapsulated, his mouth opening was good, and no muscle weakness noted on the affected side. Systemic examination was unremarkable and no other illnesses detected.

A computed tomography (CT) was done as seen in Fig.(2) and Fig. (3)

The (CT) scans showed the extent of the tumour.

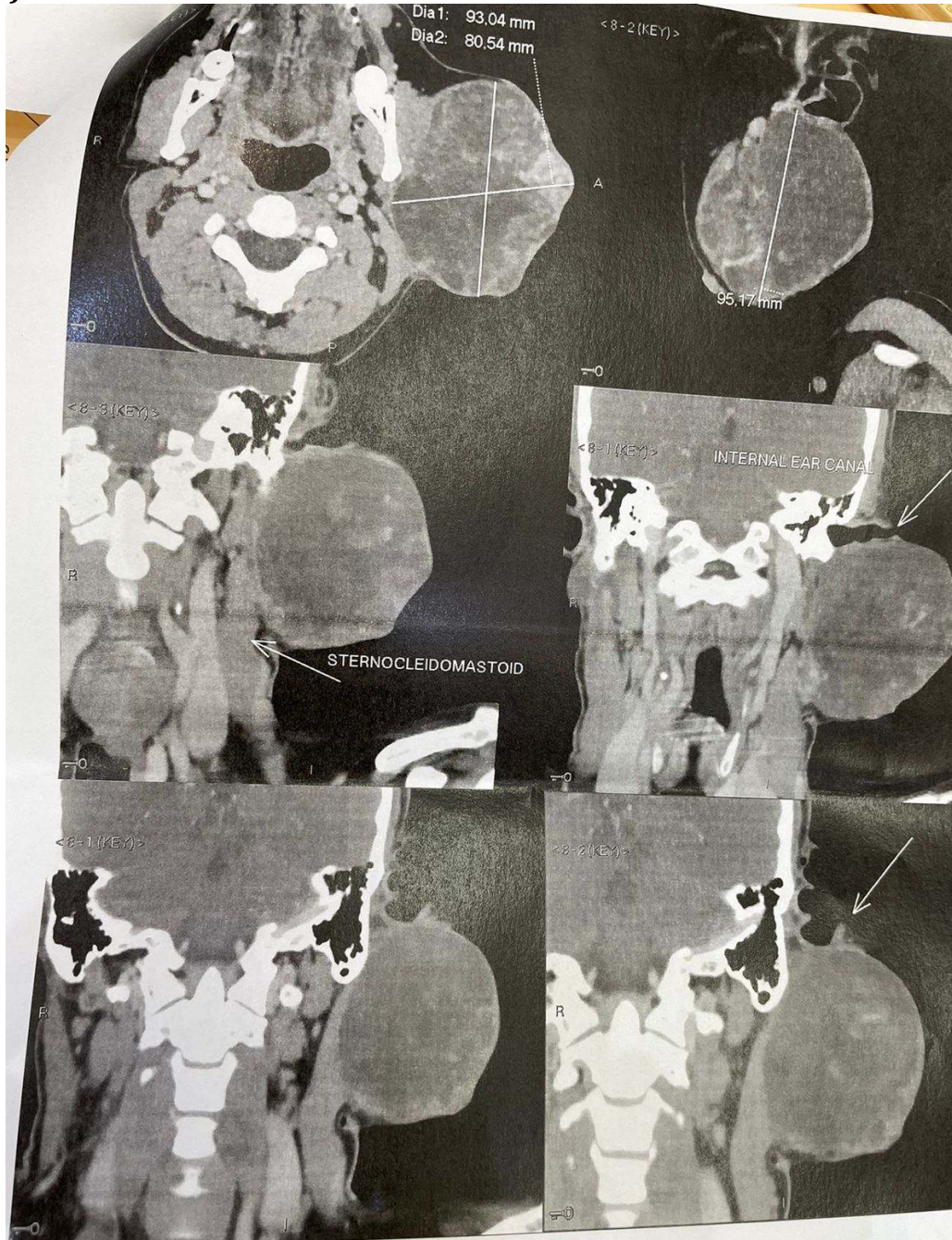


Fig.2. Scans reported a L. sided hypodense inhomogeneous enhancing cystic mass measuring (93 mm by 80mm by 95mm) of the superior parotid gland. It abutted the angle of the left mandible and tip of mastoid, was well defined, oval in shape with no calcification It was inseparable from the sternocleidomastoid and masseter muscles

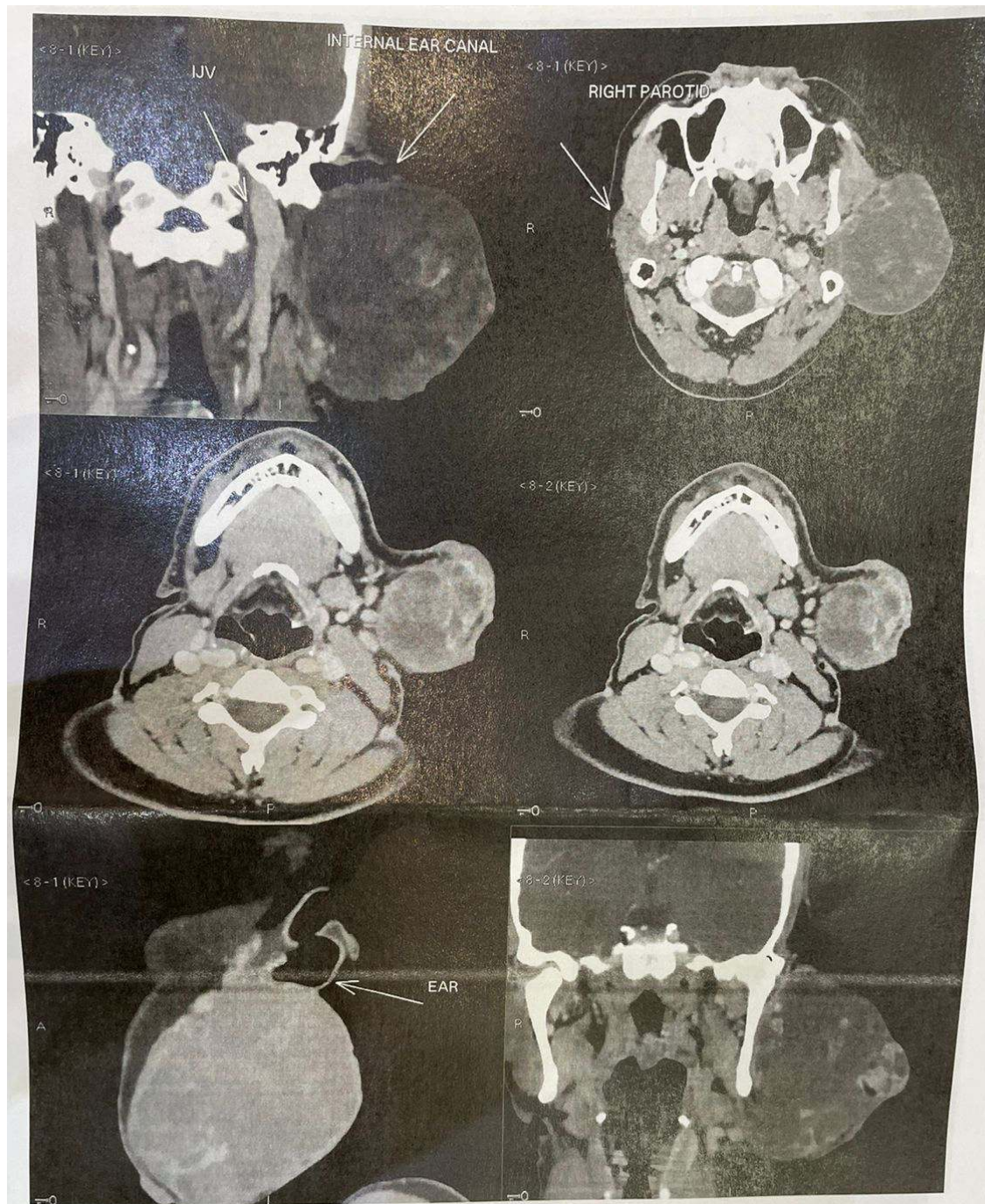


Fig. 3.

A differential diagnosis included (1).

1. Pleomorphic adenoma.
2. Warthin tumour.

3. Adenoidal cystic carcinoma.
4. Other nonspecific neoplasms to salivary glands.

Histology remains the gold standard to differentiate the tumour. A fine needle aspiration (FNA) was done and tissue sampling confirmed a diagnosis of pleomorphic adenoma. FNAs are associated with a very low risk of spillage and seedling occurrence.

Peri-operative Management.

Airway management did not pose a problem. Following a careful assessment of jaw opening and neck mobility a Mallampati class ii was assigned.

The patient was well oxygenated and induced with propofol . Rocuroniums used as a muscle relaxant and was followed by a smooth induction and Intubation.

Maintenance was a mixture of 0.5 % oxygen/nitrous oxide and desflurane. Target control infusion (TCI) of remifentanyl initiated and a ketamine infusion at 0.5 mg/kg and continued throughout the procedure. Ketamine is a N-Methyl-D-Aspartate (NMDA) antagonist and prevents opiate induced hyperalgesia in particular with remifentanyl (4) and also acts as an adjunct to analgesia and anaesthesia. Facial nerve monitoring is our practice and evoked responses to electrical stimuli observed. Muscle relaxation is reversed intraoperatively with sugammadex to monitor FN function. Dexmedetomidine is introduced to increase the depth of anaesthesia and facilitate ventilation. In addition, control of blood pressure (BP) with a mean BP (MAP 65) is maintained and blood loss minimised.

The surgery lasted 4.5 hours. The patient remained stable through the procedure maintaining normal haemodynamic (BP) , heart rate and oxygenation .

Decasone (0.1 mg/kg) to reduce swelling at the surgical sight , fentanyl and intravenous paracetamol given for pain relief prior to discharge to the recovery area (PACU). Blood gas analysis showed : PH 7.35 , PCO₂ 37.1 , PO₂ 182, HCO₃ 20, Hb 15. FiO₂ 40%.

He was safely extubated and discharged to the ward on a non- opiate analgesic infusion (4) for post-operative pain relief. Slight weakness and numbness were observed on the affected side which improved in the following days with no signs of permanent facial nerve entrapment or damage.

Fig.4 . The tumour excised was a large multinodular encapsulated mass measuring 102 x 80 x 75 mm and weighing 328 grams. The histopathological features report confirmed a pleomorphic adenoma and the excision of the tumour mass appeared complete. The cut surface showed a multinodular myxomatous tumour with no evidence of malignant transformation.



Fig. 4. Tumour mass excised weight (328 grams.) . The overlying skin showed features of iatrogenic intervention (keloids) following earlier interventional surgery



Fig 5. Post -surgery. Keloid formation along surgical scar.

DISCUSSION

PA have an incidence rate of between 2.4 and 4.9 per 100,000 persons per year with surgical removal being the main mode of treatment (5). The reasons for parotidectomy are correcting cosmetic deformities and the risk of malignant transformation. Dissection and preserving the branches of the facial nerve is technically challenging even in experienced hands. The procedure is safe and transient facial palsy and skin hypo-anaesthesia (sensory deficit) being the most common post operative complication (6). In the present case the tumour mass was excised with facial nerve monitoring and no permanent damage to the facial nerve recorded. No other complication was encountered.

Warthin tumour is a benign cystic tumour of the salivary glands having abundant lymphocytes and epithelial components. Its malignant transformation is rare and its diagnosis depends on its histopathological appearance (7) and clinical course.

Recurrent PA

A small percent (2-5 %) of (PA) recur. If left untreated there is a (1.5- 13.8 %) chance of its transformation into a carcinoma ex-pleomorphic adenoma (5). Risk factors include multiple recurrences, deep lobe tumours, male sex, increased size of the tumour and older age persons. Major cause of recurrences is tumour puncture and spillage during resection (5). Rarely following recurrences metastasis to regional nodes, bone and lungs occur (3). Recurrent PA requires reoperation with surgery in a scarred tumour bed being more difficult and a strong likelihood of serious damage to the facial nerve occurring (6).

To reduce the risk of recurrence in patients with recurrent PA, Nicholas et al combined radiation therapy (RT) as adjuvant therapy after surgery. They conclude that subsequent tumour recurrence was significantly decreased (8).

Parotidectomy vs Observation

The optimal management of PA in adult patients 50 years or older as suggested by Kligerman et al (9) is balancing the risks of malignant transformation (1.5% in the first 5 years) **left untreated** with increases to (10% at 15 years) against the risk of surgical complications following parotidectomy. The outcomes between parotidectomy and observation were similar at 70 years or older. This was measured with quality-adjusted life -years (QALYs). In an elderly population observation may be the favoured treatment.

Complications of Parotidectomy.

Parotidectomy will require general anaesthesia. In patients with long standing co-morbidities, risks pertaining to systemic illnesses such as chronic cardio-pulmonary dysfunction, diabetes and fitness to undergo a long anaesthesia should be addressed.

Surgically the main risk is injury to the FN with subsequent facial weakness and sensory deficit. Other complications are sialoceles, wound infection and recurrence, Freys syndrome (sweating and flushing of skin near the ear when eating), and a salivary fistulae (6).

CONCLUSION

PA occur most frequently in the superior lobe of the parotid gland. Left untreated they can grow to an enormous size. Complete surgical removal is the treatment of choice (10)(11). Facial

nerve injury is a major risk factor and nerve monitoring a helpful aid during surgery. General anaesthesia is required and depending on tumour size may require many hours, with meticulous care needed to preserve the FN. Recurrences of PA will require repeat procedures. Malignant transformation can occur but the risk is low. Recurrences is a risk factor for malignancy as is previous exposure to radiation, advanced age and tumour size (1). Work exposure in asbestos and rubber manufacturing plants are environmental factors that may have a role in malignancy and PA transformation. Metastasising pleomorphic adenoma (MPA) is a rare malignant tumour which result in secondaries to other sites. MPA remain benign(histologically) but have malignant potential behaviour (12).

PA require regular follow up and monitoring. Given a history of an earlier resection and a recurrent episode the above patient was counselled to do annual follow ups.

Teaching Points

- PA is the most common tumour of the parotid gland.
- Benign in nature they may recur.
- Surgical resection with FN preservation is the treatment of choice.
- Malignant transformation occurs but the incidence is low.

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