Chapter 16

Recurrent Pleomorphic Adenoma

16

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Complications to Avoid

- In primary surgery, attention to surgical technique, avoidance of tumor manipulation, and adequate exposure will reduce the likelihood of recurrence of pleomorphic adenoma.
- When recurrence is suspected, review the histology from previous surgery and confirm accurately the persistence or recurrence of the pleomorphic adenoma.
- Revision surgery usually reveals a tumor more extensive than was evaluated both clinically and by imaging.

- If complete excision is unlikely with or without preservation of neurological structures then referral to a specialist center is warranted.

Introduction

The treatment of choice for salivary gland neoplasms, both benign and malignant, is surgery with preservation of vascular and neurological structures. This assumes, of course, that the patient is willing to undergo the proposed surgery and that their comorbidities do not contraindicate surgery. The aim of salivary gland tumor surgery is complete excision, with as safe of a margin of normal tissue that is feasible and oncologically appropriate.

Recurrent tumor following surgery or any treatment usually presents as a recurrent swelling at the primary site, with or without local symptoms: a mass or multiple masses, pain, ulcer, facial palsy, dyspnea, diplopia, or dysphonia depending upon whether the primary site is of major or minor salivary gland origin. Tumors of salivary gland origin may recur in sites distant from the primary site, and may present singly or in combination with such as cervical nodal involvement or distant metastases to lung, bone, and brain. The recurrence may present months or years following treatment, and hence 5-year survival figures for tumors of salivary gland origin are generally meaningless unless data include patients followed up and observed for more than 15–20 years [5, 11]. Unfortunately in the current climate of nationalized care in the UK, the cost and time for this protracted follow-up has dissuaded some specialists from providing prolonged surveillance.

Pleomorphic Adenoma

The most common benign tumor of salivary gland origin is the pleomorphic adenoma (80%) and presents at all sites in the head and neck, as salivary gland tissue is distributed widely. The most frequent site is the parotid gland (Fig. 16.1), followed by the submandibular gland and the minor salivary glands, particularly in the oral cavity. Pleomorphic adenomas are usually solitary lesions, although synchronous or metachronous involvement of two or more major glands can occur [25] (Fig. 16.2). Pleomorphic adenomas may also be found in combination with other salivary gland tumors, most commonly Warthin's tumor [15, 74]. Pleomorphic adenoma may develop in patients from a wide range of ages but are most commonly diagnosed in patients between the ages of 30 and 50 years; they are uncommon in the first two decades of life, although they have been reported [8].

The usual clinical presentation is of a painless, slowly growing, firm mass when diagnosed in all sites of the head and neck. The tumor is usually surrounded by a fibrous capsule of varying thickness with a clear demarcation between the tumor and the adjacent salivary tissue. Morphological diversity is the hallmark of pleomorphic adenoma, and few other tumors of salivary gland origin manifest such a wide spectrum. All tumors demonstrate combinations of gland-like epithelium and mesenchymal-like tissue, but the proportions of each vary widely. Pleomorphic adenomas are categorized into four types: principally myxoid; myxoid and cellular components present in equal proportions; predominantly cellular; and extreme cellular [74]. Pleomorphic adenomas arising in the oral and pharyngeal minor salivary glands demonstrate the same histological features as those in the major glands. Pleomorphic adenomas arising in the minor salivary gland generally present as well-circumscribed, smooth, firm masses, most commonly located on the palate, upper lip, and buccal mucosa [75], but also present in the nasal cavity, oropharynx, and larynx. Because most pleomorphic adenomas arising in minor salivary glands are removed when they are less than 2.0 cm, surface bosselation is uncommon; it is seen frequently when tumors are bigger than 3 cm. A fibrous capsule is not often apparent, but the tumor is clearly demarcated from the surrounding tissues.

The management of a primary pleomorphic adenoma is complete surgical excision with preservation of local neurological structures wherever its location in the head and neck. Accurate assessment by computed tomography (CT) or magnetic resonance imaging (MRI) and the judicious use of fine-needle aspiration cytology (FNAC) provide important information which is used in formulating a plan of management. In the parotid gland this implies that the surgical goal should be to achieve tumor clearance within the confines imposed by the facial nerve [26]. The tumor capsule and margins can be violated by any surgical procedure, which makes this form of surgery of the parotid gland precise, and the technique used is of paramount importance for successful tumor surgery [6, 28].

It has been reported [33] that the use of cell proliferation fraction measurements by flow cytometry as a biological parameter for the prediction of recurrence in pleomorphic adenomas should be considered. The authors stated that tumors of a larger size showed a higher

Fig. 16.1: Young nurse with large pleomorphic adenoma of the parotid gland

Fig. 16.2: Elderly woman with pleomorphic adenoma of both parotid glands

percentage of cells in the S-phase fraction and probably a greater tendency for recurrence. The incidence of recurrence following surgery varies depending on the surgical technique used, the experience of the surgeons, the duration of patient's follow-up, and clinical honesty. Whatever the series and its duration of patient follow-up, a recurrence rate of less than 1% is considered acceptable.

Causes of Recurrence

Multicentricity

Pleomorphic adenomas are unifocal disease in the major salivary glands; surgeons and pathologists no longer support this theory.

The Bare Area

The tumor capsule may vary in thickness from very thin (a few cells) to very thick; this variation may occur on the surface of the same tumor [68, 76]. Because many pleomorphic adenomas have a nodular surface, there is always the possibility of a nodule attached by a narrow stalk becoming separated from the main tumor mass thus giving rise to a recurrence. Pseudopodia (microscopic finger-like formations of tumor tissue which extends beyond the main mass of tumor) are a significant risk factor for local recurrence of benign pleomorphic adenomas [12, 29]. This is referred to as "capsule penetration" which occurs earlier and is more common in the bosselation process [37]. In capsular perforation, the tumor cells perforate the capsule and lie adjacent to

the normal parotid tissue. Subcapsular splitting may be no more than a dehiscence resulting from perioperative handling, and the presence of blood within the split would support this hypothesis. Another publication [46] confirmed that no tumor has a smooth surface, and all tumors have a "bare area." The bare area is not always exposed to the facial nerve and may occur at any location along the tumor surface. The surgeon should carry out a wide local excision with the tumor contained within as much normal tissue as is possible. The bare area or deep surface of the tumor can lie against the cartilaginous external auditory meatus, styloid process, facial nerve, or masseter muscle.

Tumor Rupture

Rupture of the tumor, because of overzealous traction, instrument compression, rough handling, or poor surgical technique, with spillage into the surgical wound are factors which have been thought to predispose to recurrence. The interior of a pleomorphic adenoma is usually soft and gelatinous, and it is these myxoid and friable cellular tumors that are at highest risk for rupture [46]. It has been suggested that the recurrence of pleomorphic adenoma cannot be fully explained by the characteristics of the tumor itself, but the cause of recurrence can usually be laid at the door of the surgeon, and his or her technique [27]. Recent reports suggest that there is no correlation between tumor capsule rupture and recurrence in pleomorphic adenoma [10, 29, 53]. However, this evidence does not fully explain the most frequent finding of multiple nodules (Fig. 16.3a–c) rather than solitary, isolated recurrences. These observations suggest that rupture of the capsule of the tumor and spillage of tumor cells are still the most likely factors contributing to recurrence of tumor. Long-term follow-up, even annual follow-up by mail, may give a more accurate picture of tumor-free disease survival, than hoping that patients who develop a recurrence will come back and consult with their original surgeon.

Extension of Tumor into Other Areas

Extension of tumor into other areas which may go unrecognized at the time of surgery has been cited [42, 62]. For instance, the tumor may become wedged between the mastoid process and the body of the mandible.

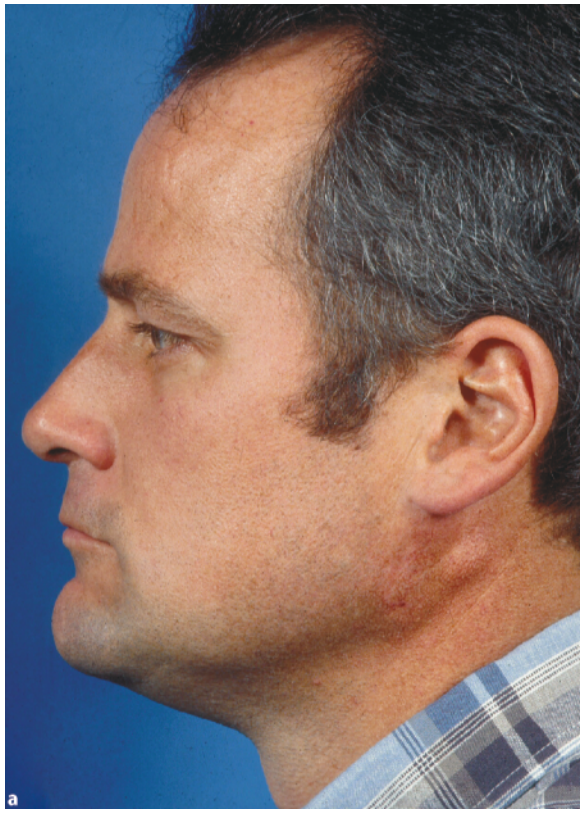


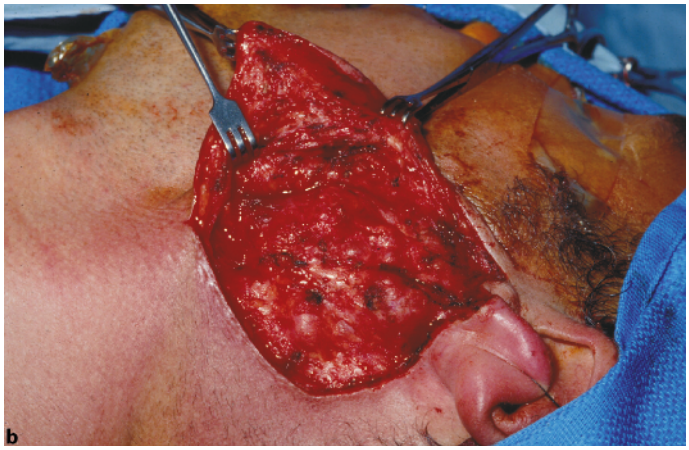
Fig. 16.3a–c: **a** Patient with recurrent pleomorphic adenoma of the tail of the parotid gland. A formal parotidectomy was not done in this case. **b–c** *see next page*

Misdiagnosis

Many clinicians still believe that a small mass in the preauricular area is more likely to be a lymph node or a sebaceous cyst than a pleomorphic adenoma. This belief results in an incisional biopsy or a local enucleation, followed by the discovery days later that the lesion was actually a pleomorphic adenoma. The clinician often elects to follow a "watch and wait" policy, and the recurrence becomes evident years later.

Enucleation

Local excision or "enucleation" was a practice recommended in the 1970s and 1980s as primary treatment



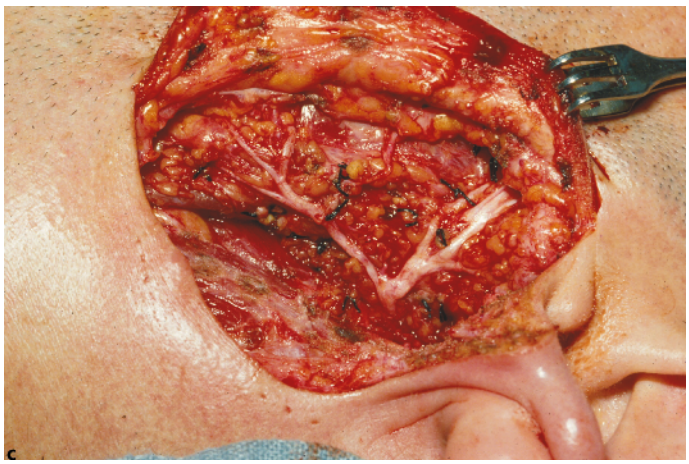


Fig. 16.3b–c: *(continued)* **b** With the flap elevated, multiple nodules of recurrent pleomorphic adenoma became apparent. **c** A total parotidectomy was carried out with preservation of the facial nerve

of pleomorphic adenoma in the parotid gland followed by postoperative radiotherapy [16, 17]. These procedures fell out of favor many years ago but advocates are resurgent again, suggesting that in "expert hands" using extracapsular dissection benign tumors can be removed safely by techniques much less invasive than a formal parotidectomy [47, 49]. However, a recurrence rate of 2% has been associated with this procedure. Other authors, reviewing the literature, continue to discourage minimal margin surgery in the parotid gland [58, 61, 69, 78]. Unfortunately the capsule surrounding the benign pleomorphic adenoma is at best a pseudocapsule that allows for bits of satellite tumors to be left behind at enucleation surgery or allows spillage during handling or manipulation during surgery, possibilities that have been discussed by many authors [2, 13, 45]. If the tumor has been enucleated with obvious rupture or documented spillage, then the proper course of treatment is a formal parotidectomy or excision of the submandibular gland.

Implantation of Tumor Cells

Implantation of tumor cells may take place along the tract of a suction drain or at the point of egress from the skin in cases of tumor rupture. Recurrences tend to be found within the surgical scar or on either side of it, marking the entry and exit points of the suture needle [42]. Soiling and contamination of instruments and gloves from an unrecognized microrupture may also give rise to recurrence.

Preoperative Biopsy

Preoperative biopsy or intraoperative sampling of the tumor may lead to soiling of the surrounding tissues and create a potential risk of recurrence. A survey of 34 internationally recognized head and neck oncologists concluded that the routine use of FNAC does not alter the treatment of a discreet mass in the parotid [48].

Poorly Designed Incisions

The incision may be poorly designed, most often in parotid surgery, usually too small limiting complete exposure of the tumor mass, and as a consequence, the surgeon may cut across the posterior border or outer surface of the tumor when the flap is being raised [70].

The Clinical Course of Recurrent Pleomorphic Adenoma

The patient with a recurrent pleomorphic adenoma usually presents with a mass and a history of parotid or submandibular surgery done some years previously. In the parotid gland there is frequently evidence of a formal parotidectomy with a large scar or a smaller scar in the preauricular area suggesting local surgery, most commonly involving the lower pole of parotid. In the submandibular gland the mass or masses may be small or extremely large. If a minor salivary gland pleomorphic adenoma has been shelled out, the patient will usually be able to relate the story.

Recurrences are best classified clinically as uninodular or solitary isolated lump or multinodular or with multiple nodules extending above and below the scar. Areas of multiple nodules and islands of tumor are more common in parotid and submandibular recurrences than they are in the case of intraoral tumors of minor salivary gland origin. In one series [42], the authors reported 63.2% recurrences of multinodular tumors in their series of recurrent parotid tumors. Solitary and multinodular recurrences account for 47–67%, depending on the referral pattern [42, 60]. The palpable single nodule is almost always discovered at microscopy to be a small cluster of grapes (nodules) lacking even the most rudimentary capsule.

The time interval between the first operation and presentation with recurrence varies. Few tumors recur within the first 12 months and most recurrences present between 5 and 7 years [21, 42]. Assessment of recurrent disease must include CT and/or MRI and probably ultrasound. Tumors of minor salivary glands require fastidious assessment in a three-dimensional manner by imaging before biopsy. FNAC analysis is mandatory to ensure that the tumor presenting is still a pleomorphic adenoma, as errors initially may have occurred or pathological changes may have developed in the interval between original surgery and the current presentation.

Assessment of a Recurrent Pleomorphic Adenoma of the Parotid Gland

The pathological recurrence will be much bigger and more extensive than clinically suspected [69].

Be aware that changes in the histopathology may make decision making more difficult.

The revision surgery will be difficult and time consuming.

The risk of trauma to the facial nerve is high and may be difficult to identify even with nerve monitoring.

The facial nerve if traumatized may never recover normal function, and even may be permanently paralyzed.

The skin may need to be replaced if recurrences invade or are adherent to the skin.

Should the patient have had prior adjuvant radiotherapy or further recurrences, further surgery if offered will be more difficult than anticipated.

Options for the Management of Recurrent Pleomorphic Adenoma of Major Salivary Gland Origin

The best policy to prevent recurrence of pleomorphic adenoma of the salivary gland is excisional biopsy of the tumor with maximal safe margin. Functional neurological preservation is the ultimate goal [79].

Treatment of the recurrent tumor is be determined by the age and physical health of the patient, the number of pervious operations, and the anatomical extent of the recurrence. The preoperative assessment must be thorough, with radiological imaging and biopsy. Available options include:

No treatment: The elderly and infirmed; very small tumors to palpation only, or an isolated recurrence (all must be confirmed as benign on FNAC); enormous tumors with complex anatomical involvement in an elderly patient.

Local excision of a solitary recurrence including the overlying scar (rarely feasible).
Parotid location: Superficial parotidectomy and facial nerve dissection—the recently enucleated tumor of small size and limited to the superficial lobe in which there has been no attempt to locate the facial nerve [36, 39].
Parotid location: Total parotidectomy with facial nerve dissection and preservation; the overlying scar is excised in continuity [36].
Parotid location: Total parotidectomy with resection of the involved nerve and immediate nerve graft with or without replacement of overlying skin.
Submandibular gland location: Supraomohyoid neck dissection with or without partial mandibulectomy, with or without removal of cranial nerve, and excision of the floor of the mouth may be necessary if tumor is massive or adherent [4].
Major or minor gland location: en bloc resection of the involved tissues with reconstruction by a pedicled or free tissue transfer with or without bone replacement and prosthesis [14, 54].
Any of these surgical procedures followed by radiotherapy [14, 40].
Possible use of radiotherapy alone after FNAC confirmation of pleomorphic adenoma, with full patient and family consent.

The Facial Nerve

The treatment of recurrent pleomorphic adenoma has added controversy about its management and more so when tumor and/or scar are confluent with the facial nerve. Radical excision with sacrifice if the facial nerve has been advocated but morbidity is naturally high. Even if the nerve is grafted a House-Brackman grade III is as good a result as one gets [22, 23, 38, 72]. A number of authors express reservations about forfeiting neural integrity in the presence of benign disease and recommend parotidectomy with dissection and preservation of the facial nerve [52, 54, 60]. Facial nerve paralysis after the first operation for recurrent pleomorphic adenoma is reported to be approximately 15%. In practice, the risk to the facial nerve depends on the extent of previous surgery, whether the facial nerve was paralyzed previously but recovered, and the resultant scarring; dense scarring is more likely to predispose to nerve injury. There is a greater risk of permanent nerve damage with each ensuing operation (30% chance of permanent nerve injury after three operations).

The likelihood of a temporary facial nerve weakness for 6 months was 27% at the first operation, 14% after the second, and rose to 33% at the third attempt. The likelihood of permanent paralysis rose from 27% after the first surgery to 29% at the second surgery [21].

A retrospective series of 35 patients treated surgically for first recurrence of a pleomorphic adenoma of the parotid gland were seen over a 15-year period, with a minimum follow-up of 7 years. Locoregional control was 77%, and malignant transformation was 5.7% [44].

In a series of 126 patients from the Mayo Clinic [60], rates of tumor recurrence after one operation were 32.3%, 7.1% after two operations, and 1.6% after three. After all procedures, partial facial nerve paralysis was recorded in 13.5% of patients and total paralysis was recorded in 5.5% of patients. Facial nerve injury is more likely if the tumor is deep, is in multiple sites, or if extensive scar tissue is present. In 24 patients who had had multiple operations, the rate of facial nerve paralysis was 53% (38% temporary and 15% permanent).

In another series of 42 patients [38], all patients had multinodular, non-tender recurrent nodules following one to four prior surgical procedures, and 6 patients had been treated with radiotherapy. In 30 patients the facial nerve was preserved. Ten patients had House-Brackmann Facial Nerve Grading grade I–II, 14 patients had grade III–IV, and 6 patients had grade V–VI. In the 12 patients who had the facial nerve sacrificed, the facial nerve function was grade III–IV in 5 and grade V–VI in 7.

The use of loupes and the operating microscope have greatly helped with minimizing permanent paralysis of the facial nerve after revision surgery for recurrent pleomorphic adenoma. The use of continuous facial nerve monitoring has also greatly minimized trauma to the facial nerve that has already been operated upon [19, 56]. When facial nerve monitoring is used during surgery for recurrent pleomorphic adenoma of the parotid gland, the facial nerve deficit can be reduced and the recovery of the facial nerve is faster [43, 80].

Results of Treating Recurrent Pleomorphic Adenoma of the Parotid Gland

Myssiorek et al. [52] reported that only 67% of patients with recurrent tumors ultimately achieved tumor-free status after surgery. Although initial recurrence of pleomorphic adenoma can occur as long as 20 years following the first surgery, most subsequent recurrences are known to develop within 2–5 years [16, 21]. In the parotid gland,

recurrence deep to the facial nerve, which would include recurrences in the parapharyngeal space, are less likely to be controlled by further surgery than recurrences lateral to the nerve [11]. Patients with more than one recurrence were significantly younger than patients who have had only one recurrence [36]. Once a patient has a second recurrence the tumor appears to become more aggressive. Subsequent recurrences are more likely and appear more quickly than the initial recurrence [21], and the likelihood of histological malignant degeneration is also greater [16, 38, 60].

Risks of Malignant Transformation

The risk of malignant transformation of recurrent pleomorphic adenoma is said to increase with time. In the literature, this incidence has varied from less than 10% to as much as 40% [39]. In a series, 2:36 (6.9%) patients treated for multiple recurrences developed malignant disease [32]. In another series 2:40 (5%) patients in similar circumstance developed carcinoma ex-pleomorphic adenoma and died of disseminated metastases to the lung and bone [38]. The literature warns that patients with recurrent pleomorphic adenoma require thorough investigation and biopsy to confirm the true nature of the persistent clinical benign disease to exclude malignant change, prior to recommencing treatment [60]. Also it must be remembered that patients who have been treated with radiotherapy for recurrent pleomorphic adenoma also continue to have a risk of malignancy [3, 64].

Factors associated with a higher change of malignant transformation in pleomorphic adenoma of the parotid gland [60] (Fig. 16.4a, b) were age greater than 40 years at initial treatment, male sex, nodules greater than 2 cm in diameter, tumors of the deep lobe [32], solitary nodules, more frequent recurrences (more than 4) [41], and having had more than one previous operation. Malignant tumors were reported in 9 (7.1%) patients. An appraisal of adenocarcinoma ex-pleomorphic adenoma or carcinosarcoma confirms that there is a malignant change in both the epithelial and mesenchymal elements [24, 57].

The enigma of the metastasizing pleomorphic adenoma needs to be considered. It seems to be associated with incomplete surgery or enucleation, leading to multiple recurrences that appear to be a prerequisite for the development of distant metastasis [31]. The evidence is overwhelming that this is associated with persistent disease at the following sites: 95% associated with the parotid gland, followed by the submandibular gland (4%) and the minor salivary glands (1%). This should be considered a low-grade malignancy but has lethal potential and can be associated with a fatal outcome [7]. In a virtual case series, 42 patients [55] had sufficient data to analyze. The mean presentation-to-metastasis latency was 16 years. Bone (45%) was the most common site for metastases, followed by the head and neck (43%) and lung (36%). There was significant morbidity and mortality from distant metastases with 5-year disease-specific and disease-free survival of 58% and 50%, respectively.

The Role of Radiotherapy

The role of radiotherapy remains controversial in the management of primary or recurrent pleomorphic adenoma [36, 39,53]. Radiotherapy should be considered if there has been tumor spillage or residual tumor following reoperation [30, 32]. Some surgeons have not treated with radiotherapy for first-time recurrence [39] because of its ineffectiveness in preventing further recurrences as well as concerns about subsequent morbidity [11, 17]. The risk for patients who have had radiotherapy for recurrent or incompletely excised pleomorphic adenoma is well documented and should be discussed with each patient and his or her relatives before treatment is recommended for a benign tumor [66].

In another series of patients, a decision was made not to sacrifice the facial nerve in 17/21 patients and performed instead a subtotal excision of recurrent pleomorphic adenoma followed by postoperative radiotherapy. Sixteen of the 17 patients (94%) remained free of clinical recurrence, with an average follow-up of 5.9 years [65]. The dose of radiotherapy ranged from 50 to 67 Gy (average 50.5 Gy). A report is awaited to learn of the long-term follow-up of this group of patients.

There is no study to date that compares surgery alone versus surgery with radiotherapy for treatment of these recurrent tumors [64]. The recurrence rate after the first operation was 15% in this series. Subanalysis of multinodular and uninodular recurrent tumors showed that patients with multinodular disease are particularly at risk when treated by surgery alone. The use of postoperative radiotherapy demonstrated an advantage only in patients

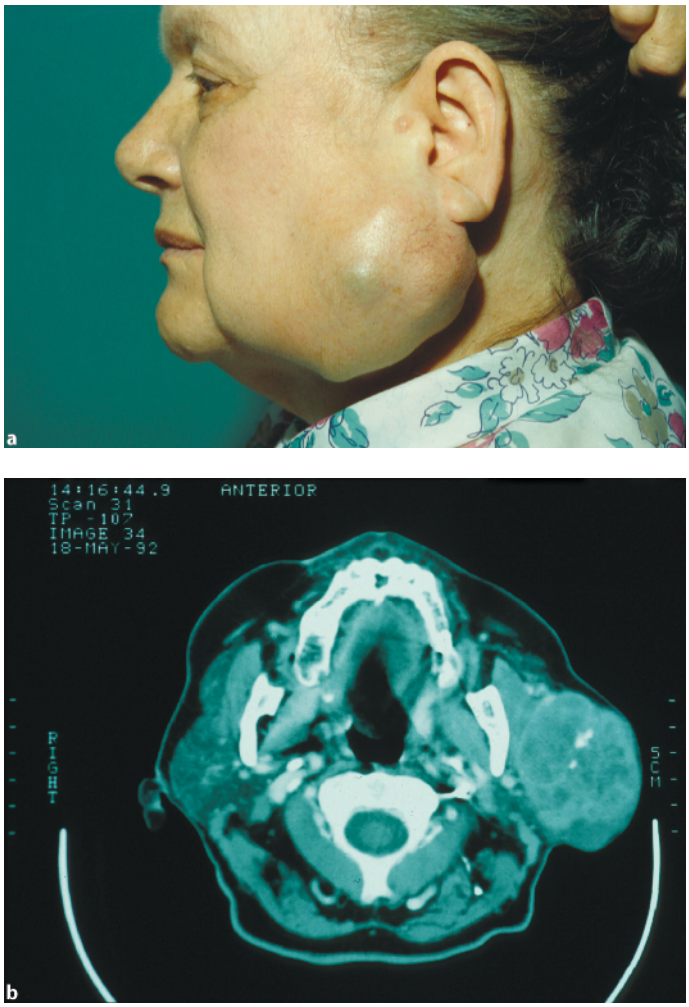


Fig. 16.4: **a** A 65-year-old patient with a 20-year history of a 7×5 cm mass in the parotid gland with a recent history of rapid increase in size and pain. Parotidectomy revealed carcinoma ex-pleomorphic adenoma. The patient was treated with adjunctive postoperative radiotherapy, had local and regional control, but died of distant metastasis within two years. **b** CT scan of same patient with carcinoma ex-pleomorphic adenoma

with multinodular recurrences [64]. None of the patients who received postoperative radiotherapy had local failure, although this difference was not statistically significant [11]. It is to be recommended that certain patients who have undergone surgery and who had ominous clinical and pathological presentations should receive postoperative radiotherapy [11].

In a large series (187 patients) from the Christie Hospital, Manchester, UK [3], all had pleomorphic adenomas of the parotid gland treated by surgery and postoperative radiotherapy by one of two techniques. Until 1976, needle implant was used, to a dose of 60 Gy, and after that time, external beam radiotherapy using megavoltage linear accelerators using an inclined plane to avoid the eyes was used. The tumor dose was 50 Gy in 15–16 fractions. This treatment followed surgery for incomplete excision or tumor spillage. The median age was 46 years, with half of the patients (87/187) having had ages between 40 and 60 years. Median follow-up for all patients was 14 years. A total of 115 patients had radiotherapy after their first

operation, with a recurrence rate of 0.9% (1 of 115); of the 115 cases there were two cases of radionecrosis (one major and one minor), one case of facial palsy, one case of Frey's syndrome, and one case of salivary fistula. Seventy-two patients had radiotherapy delayed until one or more recurrences had been surgically treated. Nine of these patients (12.5%) developed yet another recurrence after radiotherapy. There were two cases of radionecrosis (one major), four cases of facial palsy (three were complete), 16 cases of Frey's syndrome, and one case of malignant change.

Recurrence after radiotherapy continued after 20 years of follow-up. It is recommended that patients having unsatisfactory surgery due to spillage at surgery or residual tumor left behind should have radiotherapy immediately, rather than delaying treatment until local recurrence occurs, because of the increased morbidity and the higher complication incidence of yet further recurrences. A similar treatment plan [40] has been recommended at Princess Margaret Hospital, Toronto with treatment to 45 Gy in 20 fractions over 4 weeks, using an ipsilateral technique encompassing the parotid bed. Using this approach, the authors report the long-term control of tumor to be in excess of 90%.

The use of neutron radiotherapy has been recommended for the management of recurrent pleomorphic adenoma of the parotid gland [9, 18]. The indications included gross residual disease and multirecurrent multinodular disease. The actuarial 15-year locoregional control was 76% for patients with gross residual disease versus 100% for those with microscopic disease [18]. The use of neutron therapy may be considered an alternative to further surgery when patients present with more than two recurrences, with a functioning facial nerve, and with a tumor less than 5 cm as there is less likely resultant damage to the facial nerve.

The long-term risks of radiotherapy as well as neutron therapy in the head and neck include osteosarcoma of the mandible, malignant fibrous histiocytoma, synovial fistula of the temporomandibular joint, and osteonecrosis of the temporal bone [59, 71].

Recurrent Pleomorphic Adenoma of the Submandibular Gland

It is estimated that 8% of all pleomorphic adenomas presenting in the head and neck arise in the submandibular gland and the fact that the condition is rare is reflected in the paucity of any large series of patients [1, 20, 35, 50, 63, 77]. Recurrent tumors, however, are often multifocal and difficult to re-excise completely, hence more likely to further relapse if followed up for long enough [1]. Surgical excision, by means of an extracapsular gland excision, is the mainstay primary treatment to be recommended for all clinically suspected neoplasms of the submandibular gland [1, 63, 77], not only malignant lesions but also in benign neoplasms, and more extensive resections are recommended for any subsequent recurrent pleomorphic adenoma of the submandibular gland [50, 67]. Another school of thought, however, suggests that the initial procedure for all submandibular masses should be a regional dissection of the submandibular triangle, including the entire gland as well as the submental, facial, and upper cervical lymph nodes [4, 50, 67, 77]. This ensures a definitive operation for benign lesions, avoiding the risks of tumor spillage associated with a more limited excision, and removes the primary echelon of lymph nodes at risk of metastasis if the pathology in fact turns out to be malignant [77].

The propensity of pleomorphic adenoma to recur is well documented, and although most recurrences will be evident within 5 years, a significant proportion of tumors will occur 10 or more years after treatment [67]. Pathological factors thought to contribute to tumor recurrence include tumor multicentricity and microscopic tumor capsule penetration by finger-like formations. However, one of the major risk factors for recurrence of pleomorphic adenoma is related to the adequacy and technique of surgical excision. The ideal method of excision is to remove the submandibular gland with the tumor with a margin of normal tissue, thereby reducing the risk of recurrence, as no marginal areas of tissue are left behind and no spilling of tumor cells will have occurred from breaches of the tumor capsule. Other surgical factors implicated in recurrence include intraoperative tumor rupture, misdiagnosis, and surgical implantation of tumor cells [73]. The evidence suggests that recurrent pleomorphic adenoma of the submandibular gland requires a more major excision of the submandibular triangle tissue than previously undertaken, and to ensure that a wide area is excised to encompass the multifocal disease. A selective neck dissection (supraomohyoid neck dissection) clearing levels Ib, IIa, and III should also be undertaken [51].

Recurrent Pleomorphic Adenoma of the Minor Salivary Glands

The most common site for pleomorphic adenoma is in the oral cavity, and the majority are located in the palate. Recurrent pleomorphic adenomas of the palate are usually larger than the initial tumor and are best re-biopsied and imaged before undertaking any revision surgery. The imaging of recurrent tumor is similar to that seen with a malignant process, so a change from the original pleomorphic adenoma must be excluded before proceeding with treatment. Other areas in the oral cavity where pleomorphic adenomas tend to recur commonly are the buccal mucosa and the upper lip. Wide excision should ensure that such recurrences are controlled; most of the recurrent pleomorphic adenomas arising in the oral cavity are unifocal and are suitable for further surgery. Surgeons should be aware of the possibility of malignant change in recurrent intraoral pleomorphic adenoma [34].

Conclusion

Recurrent pleomorphic adenoma is being encountered much less frequently now because the correct primary surgical procedure of complete excision of the tumor is being performed initially. The persisting major factor associated with tumor recurrence is poor surgical technique rather than tumor biology. Management of recurrent pleomorphic adenoma is currently further surgery, aiming at complete local excision with preservation of neurological structures, with consideration to adding adjunctive radiotherapy postoperatively. The use of radiotherapy currently should be reserved for patients who refuse surgery if there is likelihood that the facial nerve would need to be excised and the resultant paralysis would be unacceptable in an adjunctive setting following resection of a carcinoma ex-pleomorphic adenoma. There remains, however the persistent risk of malignant degeneration in patients who have pleomorphic adenoma of salivary gland origin. Repeated recurrences, whether the patient has had adjunctive radiotherapy or not, carry a life-long risk of malignant degeneration which may result in a fatal outcome.

Take Home Messages

- A recurrence rate in surgery for pleomorphic adenoma of >1% is considered acceptable.
- Presentation is by a painless, slow-growing mass.
- Recurrences may present 15–20 years after initial surgery.
- Beware of change in histopathology—review the original and perform FNAC prior to commencing further treatment.
- Recurrences are most commonly due to poor surgical technique.
- If further surgery is offered then functional neurological preservation is the ultimate goal.
- There remains a risk of further recurrence even after apparent successful revision surgery.
- External beam and neutron radiotherapy may be an alternative treatment offered to some selected patients.
- Frequent or persistent pleomorphic adenoma recurrences may proceed to the metastasizing pleomorphic adenoma with a potential fatal outcome.

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