

Chapter 166: Neoplasms of the Auricle

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The auricles are composed primarily of cartilage and skin and, because of their anatomic location, are commonly exposed to excessive sun and cold. Since cartilaginous neoplasms of the auricle are a rare phenomenon, most new growths occur from either the skin or skin appendages.

Anatomy

The auricle develops from the first branchial groove and consists of elastic cartilage and skin, which is tightly adherent anteriorly and, to a lesser degree, posteriorly.

The external auditory canal is 2 to 3 cm long and is composed of a cartilaginous portion and a bony portion. Only the cartilaginous portion of the canal contains hair follicles and sebaceous and ceruminous glands. In the superior and posterior portion of the canal, the cartilage is incomplete and filled with fibrous tissue. The skin of the bony canal is thin and firmly adherent to the underlying bone (Million and Cassisi, 1984). The temporomandibular joint and parotid gland lie anterior to the external auditory canal, and the mastoid bone and facial nerve are located posteriorly (Million and Cassisi, 1984).

The nerve supply to the auricle and external canal is via the greater auricular nerve, the auricular branch of the vagus nerve, the auriculotemporal branch from the trigeminal nerve, and the lesser occipital nerve (Jenkins and Alford, 1986). Lymphatic drainage from the auricle and external canal is via the preauricular nodes and the mastoid lymph nodes to the jugular nodes (Jenkins and Alford, 1986).

Clinical Picture

Neoplasms of the auricle and external canal usually present as a painless growth. However, pain, itching, and minor bleeding may occur as the lesion enlarges if it is left untreated (Million and Cassisi, 1984).

Squamous cell carcinoma of the external canal often appears as a red, polypoid mass often associated with chronic infection. As the lesion enlarges and occludes the canal, a conductive hearing loss may be noted. Severe pain may also occur in advanced cases, as bone becomes involved (Glasscock and Shambaugh, 1990). A preauricular mass may be indicative of metastasis to the parotid lymph nodes (Afzelius et al, 1980; Cassisi et al, 1978; Million and Cassisi, 1984).

Pathology

Cancer of the auricle accounts for approximately 6% of all skin cancers; however, squamous cell carcinoma represents about 55% of all malignant tumors of the auricle (Shockley and Stucker, 1987). The box that follows shows a partial list of benign and malignant tumors of the pinna and external auditory canal (Million and Cassisi, 1984).

Masses of the auricle and external canal

Benign growths

Cysts
Keloid
Hemangioma
Hematoma
Osteoma
Exostosis
Cerumen gland neoplasms

Malignant neoplasms

Squamous cell carcinoma - auricle
Squamous cell carcinoma - EAC
Basal cell carcinoma
Malignant melanoma
Rhabdomyosarcoma

Benign Growths

Cysts

Sebaceous cysts generally occur in the postauricular area or on the earlobe, whereas preauricular cysts are usually congenital and may be associated with preauricular fistula. Treatment includes complete removal of the cyst along with the fistulous tract.

Keloids

Keloids or hypertrophic scar tissue occur most frequently in blacks (Plate 21, A). The best treatment is prevention because these lesions tend to recur. Attempts to minimize recurrence of the keloids include local injection of steroids or low-dose irradiation.

Hemangioma

Hemangioma of the auricle, although infrequent, usually occurs in association with hemangioma involving the parotid gland, cheeks, lips, neck, and subglottic area (Plate 21, B). In general, it undergoes involution over time. The use of steroids has been advocated and will reduce the size of the hemangioma, but the lesion will recur when the steroids are withdrawn. Rarely does hemangioma of the auricle and external canal require any treatment.

Hematoma

Hematomas of the auricle must be evaluated quickly to prevent pressure necrosis of the cartilage and subsequent formation of "cauliflower ear" (Plate 21, C and D). Treatment involves evacuation of the hematoma and pressure dressings to prevent recurrence. Correction of a cauliflower ear deformity is difficult and often unsatisfactory (Jenkins and Alford, 1986).

Osteoma and exostosis

Osteoma and exostosis occur on the bony portion of the external auditory canal; however, the osteoma usually occurs at the tympanosquamous suture line and appears pedunculated with a narrow neck (Graham, 1979). Exostosis, on the other hand, usually has a broad base and is attached to the underlying bone (Batsakis, 1979). A history of swimming in cold water as a youth is commonly elicited. Both can cause a conductive hearing loss if

they become large and occlude the external canal. They should be removed only if symptoms appear.

Neoplasms of ceruminous glands

Cerumen glands are located only in the cartilaginous canal and are specialized exocrine glands similar to the eccrine sweat glands of the auricle and skin (Batsakis, 1979). Tumors involving these glands are extremely rare and include ceruminous gland adenoma (ceruminoma), ceruminous gland adenocarcinoma, and adenoid cystic carcinoma (Batsakis, 1979).

Signs and symptoms are related to obstruction of the external auditory canal such as hearing loss and external otitis. Treatment is surgical, and the extent of surgery is determined by the histology of the neoplasm.

Malignant Neoplasms of the Auricle and External Canal

Squamous cell carcinoma of the auricle

Squamous cell carcinoma represents approximately 55% of all cutaneous cancers involving the auricle (Shockley and Stucker, 1987). The many contours of the auricle and its tight attachment of the skin to the underlying cartilage make control of squamous cell carcinoma more difficult. Cosmetic deformities are common and are difficult to reconstruct or camouflage. Spread to adjacent regions include the external auditory canal, temporal bone, temporomandibular joint, and mandible. Metastasis to the parotid and cervical lymph nodes is reported to occur in 12% to 18% of patients (Afzelius et al, 1980; Cassisi et al, 1978).

Clinically these lesions often appear ulcerated with an area of surrounding erythema and induration (Hahn et al, 1983). Treatment varies according to the extent of tumor involvement, as well as the anatomic location on the pinna. Surgical removal of small lesions affords a high rate of cure with satisfactory cosmetic appearance (Freeland and Chung, 1983; Million and Cassisi, 1984). Common techniques involving excision and reconstruction are demonstrated in Figs. 166-1 and 166-2 (Jenkins and Alford, 1986).

Large lesions invading cartilage and involving the postauricular sulcus often require complete removal of the external ear. If this method of treatment is chosen, it is advantageous to leave a small portion of the superior aspect of the helix intact to facilitate the wearing of glasses. For large lesions of the auricle, which would require total removal, another option is to treat with radiation for cure and save surgery for salvage. Contrary to the commonly held belief that radiation therapy produces chondronecrosis, if properly fractionated techniques are used, this fear is unfounded (Million and Cassisi, 1984). If the entire auricle is removed, prosthetic ears are commonly used for reconstruction, as soft tissue reconstruction rarely produces a normal-appearing ear. Although the ear does well cosmetically, problems with the glue are burdensome to the patients. Currently research is under way to implant magnets in the bone and on the prosthesis to eliminate the need for glue.

The results of therapy for squamous cell carcinoma of the auricle are good. Shockley and Stucker (1987) evaluated 40 patients with 43 lesions of squamous cell carcinoma of the auricle treated by surgery with a minimum 2-year follow-up (Shockley and Stucker, 1987). The cure rate after the initial therapy alone was 85% and after salvage treatment 93%. The majority of the lesions, however, measured less than 1 cm.

Squamous cell carcinoma of the external auditory canal

Squamous cell carcinoma of the external auditory canal is rare and, unlike carcinomas of the auricle, is not subject to excessive ultraviolet irradiation (Kinney and Wood, 1987). Carcinomas in this area most commonly occur in men over the age of 50. Approximately half of the patients present with a history of chronic otitis media or external otitis. The earliest sign is frequently bloody or serosanguineous discharge, often associated with pain, much the same clinical picture associated with otitis externa (Glasscock and Shambaugh, 1990). The acute pain associated with otitis externa usually responds to local treatment; if pain persists in the presence of adequate treatment, carcinoma of the external canal must be considered.

Once the diagnosis of carcinoma is suspected, a biopsy is performed to confirm the diagnosis. More than one biopsy may be necessary because granulation tissue and debris are often present. Histologically these tumors appear to be moderate to well-differentiated squamous cell carcinomas. Because the tympanic membrane cannot be visualized in a large number of cases, the physician is severely limited in determining the true extent of the disease process. Because of these limitations a high resolution computed tomography (CT) scan with contrast must be done. CT is preferred to magnetic imaging (MRI), as the latter does not provide good bone details (Bird et al, 1983; Olsen et al, 1983).

Treatment is usually surgical, and the amount of resection is determined by the extent of disease (Arena, 1974; Byers et al, 1983; Conley and Schuller, 1976; Glasscock and Shambaugh, 1990; Hahn et al, 1983; Jenkins and Alford, 1986; Johns and Headington, 1974; Lewis, 1960). Fig. 166-3 depicts diagrammatically the amount of canal resection necessary for various lesions (Glasscock and Shambaugh, 1990; Jenkins and Alford, 1986). The use of the "sleeve resection" for various sizes and locations is highly curative. For lesions involving only the cartilaginous portion of the external auditory canal, a limited sleeve resection will suffice. A split-thickness skin graft is applied, and a wide meatoplasty remains. If the osseous canal is involved, the "sleeve resection" should include the entire bony canal, tympanic membrane, and ossicles, then a subtotal temporal bone dissection must be performed. Postoperative radiation therapy should be given if a positive margin may be present.

Kinney and Wood (1987) report 85% disease control in 14 patients whose lesions were limited to the external canal. Control of disease was only 40% if the disease extended beyond the middle ear.

Basal cell carcinoma of the auricle

Unlike squamous cell carcinoma, basal cell carcinoma of the auricle is uncommon and accounts for only 1.5% of all basal cell carcinomas of the head and neck (Batsakis, 1979). The helix is rarely involved, and the majority of the tumors occur in the preauricular or postauricular areas and are most often seen in fair-skinned individuals with a history of long

hours of sun exposure (Plate 22, A).

The lesion is described clinically as a painless, well-circumscribed ulcer with a raised border that slowly increases in size. Cervical metastasis, although they have been reported, most commonly occur in lesions that have recurred and been treated many times.

Treatment consists of complete surgical removal. The surgical margin need not be as large as that for squamous cell carcinoma. Adequate treatment and cures have been obtained with curettage, radiation therapy, and Mohs' chemosurgery. Radiation therapy is usually reserved for huge, aggressive lesions or large recurrent lesions that have had multiple excisions. Mohs' chemosurgery is ideal for recurrent lesions (Bumsted et al, 1981). This technique uses in situ fixation of the tissue, removal of the fixed tissue, and frozen section histologic examination of the tissue. This method is followed until the margins are free of tumor. Reconstruction of the defect may then be planned, or it may be left to granulate with satisfactory cosmetic results.

Malignant melanoma

In a series of 42 patients with melanoma of the ear, Pack et al (1970) reported that the majority of melanomas were located on the peripheral aspects of the ear. Forty-three percent were on the helix and 24% were located on the antihelix (Plate 22, B). Lymphatic spread, treatment, and prognosis are greatly influenced by location.

Clinically the majority of melanomas begin as superficial lesions, with the tendency to spread toward the periphery (Byers et al, 1980). The diagnosis should be made histologically after performing either an incisional or excisional biopsy. Because of the propensity of these lesions to metastasize via either the lymphatics or hematogenous system, further work-up such as CT; liver, bone, and spleen scan; and a chest radiograph should be performed.

Treatment is determined by the extent of the lesion. Localized superficial lesions can be excised via wedge excision. Larger, invasive lesions may require total removal of the external ear in conjunction with a parotidectomy and some form of neck dissection (Byers et al, 1980; Conley and Schuller, 1976). The use of chemotherapy or hyperfractionation radiotherapy is currently experimental.

Rhabdomyosarcoma

Rhabdomyosarcoma is the most common aural tumor of childhood, and the ear is the third most frequent site of rhabdomyosarcoma in the head and neck, after the orbit and nasopharynx (Dehner and Chen, 1978). Frequently these patients present with otorrhea and pain, often with cervical lymphadenopathy and cranial nerve involvement. A hemorrhagic mass and bony destruction are common findings. Meningeal involvement and intracranial extension occur rapidly with rhabdomyosarcomas in this location (Anderson et al, 1990). Most rhabdomyosarcomas of the ear are classified as embryonal, with botryoid arrangement the most frequent. Microscopically these tumors appear as small, spindle-shaped cells in a loose, myxoid background. Cross-striations are not necessary for histologic diagnosis. The degree of differentiation may have some effect on survival.

Recommended treatment varies, but a combination of radiation therapy and chemotherapy, using a variety of drugs (including vincristine, dactinomycin, cyclophosphamide, doxorubicin, isosphamide, etoposide, and melphalan), is generally accepted (Raney et al, 1983; Anderson et al, 1990). In rare tumors limited to the external auditory canal, surgical removal may be readily accomplished. The propensity of spread to the meninges early in the disease is decreased in this location. With combination therapy, life expectancy of these children has improved; some have survived several years with no evidence of disease. Recurrent disease occurs most commonly as meningeal extension.