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HISTOPATHOLOGICAL SPECTRUM OF EAR LESIONS IN TERTIARY HEALTH CENTRE – A RETROSPECTIVE AND PROSPECTIVE STUDY

Pathology

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ABSTRACT

Background: Ear lesions can be of various types including non neoplastic and neoplastic lesions. The current study was done to analyse the histopathological spectrum, site, age, sex-wise distribution and presentation of ear lesions. **Methodology:** A retrospective and prospective study of 141 cases was conducted over a period of five years from January 2017 to December 2021 in the Department of Pathology, Sardar Patel Medical College and Associated Group of Hospitals, Bikaner. Histopathological examination was done after routine processing and staining with Hematoxylin and Eosin. **Results:** Out of total 141 cases, youngest patient in the study was 3 years old and oldest was 80 years old. Maximum number of patients presented with mass in ear (42.84%). Cases were most common in second decade of life (38.30%). Slight male predominance was seen. 52% cases were present in middle ear. Non neoplastic lesions (87.94%) were more common than neoplastic lesions. Cholesteatoma (35.48%) was found to be most common among non neoplastic lesions and was common in second decade of life. Squamous cell carcinoma (35.29%) was found to be most common among neoplastic lesions and was common in eighth decade of life. **Conclusion:** Ear lesions can involve all age groups. Histopathology is a key tool in differentiating aural lesions and contributes in reducing morbidity and mortality due to ear lesions.

KEYWORDS

Ear, Histopathology, Cholesteatoma, Squamous Cell Carcinoma.

INTRODUCTION

Ear is the sense organ for hearing and balance. Lesions of ear are widely distributed amongst all groups of people. Ear masses can occur in any age or sex group. A number of diseases can involve the ear and some of these can pose speci5al problems at this site[1]. They rarely cause mortality but quality of life is affected. The ear can be divided into external, middle and inner segments[2].

The external ear comprises of the auricle or pinna composed of cartilage, the external cartilaginous meatus and the external bony meatus. Tympanic membrane forms partition between external auditory canal and middle ear.

The middle ear consists of 3 parts—the uppermost portion is the attic, the middle portion is mesotympanum and the lowermost portion is the hypotympanum. Middle ear has an opening of eustachian tube, the mastoid antrum with mastoid air cells and three ossicles.

The inner ear or labyrinth consists of bony labyrinth which is embedded in the petrous bone and contains the membranous labyrinth. The bony capsule consists of three semicircular canals posteriorly, vestibule in the middle and snail-like cochlea anteriorly.

The common diseases involving external ear are congenital lesions like bat ear, preauricular appendages, anotia, microtia and macrotia,; traumatic lesions like avulsion, lacerations of pinna, foreign bodies, atresia, osteoma, exostosis of external auditory canal, perforation and retraction of tympanic membrane, inflammatory lesions like perichondritis and otitis externa, cysts, polyps, keloid, benign and malignant neoplasms.

The common diseases involving middle ear are inflammatory polyps, cholesterol granuloma, otitis media and cholesteatoma. External ear infections are the most common cause of ear canal or ear drum irritation. Aural polyps are non-cancerous, fleshy growths in the outer ear canal or eardrum. They can also arise from middle ear. Polyps usually arise from constant irritation of the ear canal or eardrum. External ear infections are the most common cause of this irritation[3]. Cholesteatomas of the external ear canal are composed of a cystic mass of keratinized squamous epithelium overlying an area of bony sequestration in the inner half of canal[4]. They are usually the result of chronic otitis media and may involve the peri-tympanic space, mastoid cavity and petrous part of the temporal bone[5,6].

The common diseases involving inner ear are labyrinthitis, labyrinthine fistula, syphilis, perilymphatic fistula and vestibular neuritis.

Squamous cell carcinomas of head and neck account for one-fourth of total squamous cell carcinomas[7]. Most patients are elderly. They are more common in ear pinna followed by ear canal[8,9]. Most common tumour involving internal auditory canal and cerebellopontine angle is acoustic neuroma.

Ear piercing and wearing earrings have been associated with many medical problems including local infection, sepsis, superficial cervical lymphadenopathy, localized argyria, contact dermatitis, lymphoplasia, edema, hematoma formation, exuberant granulation tissue, keloids, lipomas, embedded earrings, epidermal cyst formation, sarcoidal granulomas, earlobe deformities, cutaneous injury resembling frostbite, pressure sores and bruising of the postauricular area[10].

MATERIAL & METHODS

The study has been carried out in the Department of Pathology, Sardar Patel Medical College and Associated Group of Hospitals, Bikaner. It is a hospital based retrospective and prospective study of incisional and excisional biopsies of ear lesions submitted for histopathological examination, processed routinely and examined microscopically. The study has been conducted over a period of five years from January 2017 to December 2021. Clinical data have been obtained from hospital record of the patient and from requisition form submitted along with tissue specimen received in the department of pathology. Sections have been made from paraffin blocks and stained with hematoxylin and eosin stain. Special stains have been carried out if necessary. Processed specimens have been examined microscopically and results were recorded after microscopic analysis.

Table no. 1: Age and Sex-wise distribution

Age group in years	Male	%	Female	%	Total	%
0-10 years	6	42.86	8	57.14	14	9.93
11-20 years	24	44.44	30	55.55	54	38.30
21-30 years	18	47.37	20	52.63	38	26.95
31-40 years	6	42.86	8	57.14	14	9.93
41-50 years	6	85.71	1	14.28	7	4.96
51-60 years	5	83.33	1	16.66	6	4.26
61-70 years	1	33.33	2	66.66	3	2.13
>70 years	5	100	0	0	5	3.55
Total	71	50.35	70	49.65	141	100

A total of 141 cases of ear lesions were received during the study period. The maximum number of cases were found in second decade of life with 38.30% (n=54) cases followed by third decade of life with 26.95% (n=38) cases. Maximum number of patients for both male and female were in second decade of life with 24 and 30 cases respectively. The cases showed slight male predominance with 50.35% (n= 71)

male cases. The male: female ratio was 1.01:1.

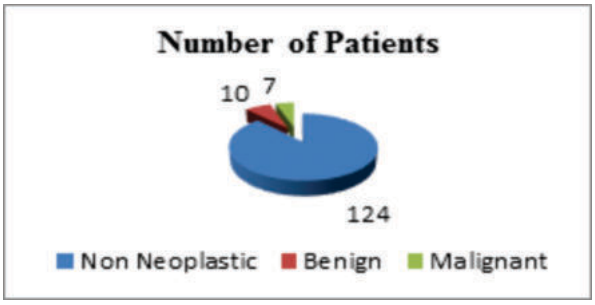

Chart No. 1: Distribution of patients according to diagnosis:

As shown in Chart no. 1, out of total 141 cases, non neoplastic ear lesions with 124 cases (87.94%) were more common, followed by benign lesions with 10 cases (7.10%) and malignant lesions with 7 cases (4.96%).

Cholesteatoma was found to be the most common non neoplastic lesion with 35.48% (n=44) cases with maximum number of 22 cases in second decade of life, followed by epidermal cyst with 19.36% (n=24) cases, polyp with 14.52% (n=18) cases, non specific inflammation with 8.87% (n=11) cases, otitis media with 8.07% (n=10) cases, dermoid cyst with 4.83% (n=6) cases, sinus with 4.04% (n=5) cases, whereas only 2 cases (1.61%) were recorded each of keloid, otitis externa and tuberculosis A total of 17 cases of neoplastic ear lesions were studied. Squamous cell carcinoma was found to be most common neoplastic lesion with 35.29% (n=6) cases, followed by hemangioma with 17.665 (n=3) cases, fibroma with 11.77% (n=2) cases, whereas only 1 case (5.88%) was recorded each of nevus, ossifying fibroma, osteoma, lipoma, schwannoma and basal cell carcinoma.

A total of 6 cases were reported as squamous cell carcinoma. Maximum number of 3 cases were found in eighth decade of life.

DISCUSSION

Ear is affected by both neoplastic and non neoplastic conditions. Our study was undertaken to study histopathological spectrum, age-wise distribution, sex-wise distribution and pattern of occurrence of ear lesions. There are various lesions of ear, involving paediatric to elderly age groups. We compared the findings of the present study with other studies conducted in the past. The comparative analysis is shown in Table No. 2 and 3.

Table no. 2: Diagnosis-wise distribution

Study	Non neoplastic	Neoplastic	
		Benign	Malignant
N M Agarwal et al	80%	4%	16%
Present study	87.94%	7.10%	4.96%

In our study non neoplastic ear lesions were more common with 87.94% cases as compared to neoplastic lesions (12.06%). This is in concordance with Agarwa N M. et al[11] as shown in Table no. 2.

The most common non neoplastic lesion vary from study to study. We found cholesteatoma to be the most common lesion with 35.48% cases which is in contrast with Agarwal N M. et al. who found inflammatory polyp to be the most common non neoplastic lesion with 40% cases followed by cholesteatoma which comprised of 24% cases.

Table no. 3: Distribution of malignant lesions

Study	Martinez-Devesa P et al	G. B. Blake et al	Agarwal N M. et al	Present study
Squamous cell carcinoma	74%	55.5%	87.5%	85.7%
Basal cell carcinoma	18%	34.93%	-	14.3%
Angiosarcoma	4%	-	-	-
Anaplastic carcinoma	4%	-	-	-
Malignant melanoma	-	4.8%	-	-
Basosquamous carcinoma	-	2.05%	-	-
Kaposi sarcoma	-	0.68%	-	-
Malignant Cylindroma	-	0.68%	-	-
Leiomyosarcoma	-	0.68%	-	-
Hidradenocarcinoma	-	0.68%	-	-
Embryonalrhabdomyosarcoma	-	-	12.5%	-
Total	100%	100%	100%	100%

Among malignant lesions, squamous cell carcinoma was found to be most common malignant lesion. This is in concordance with Agarwal N M. et al with 87.5% cases of squamous cell carcinoma, Martinez-Devesa P et al (2008)[12] with 74% cases of squamous cell carcinoma and also with G.B. Blake et al (1974)[13] with 55% cases of squamous cell carcinoma. In our study, squamous cell carcinoma was found in 85.7% cases. The second most common malignant lesion in our study was basal cell carcinoma with 14.3% cases. This is in concordance with Martinez-Devesa P et al (2008) with 18% cases of basal cell carcinoma and also with G.B. Blake et al (1974) with 35% cases of basal cell carcinoma as shown in Table no. 3.

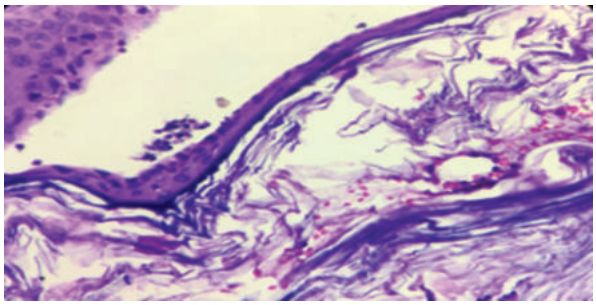

Fig.1. High power view (40x) of Cholesteatoma in H&E staining in histopathology

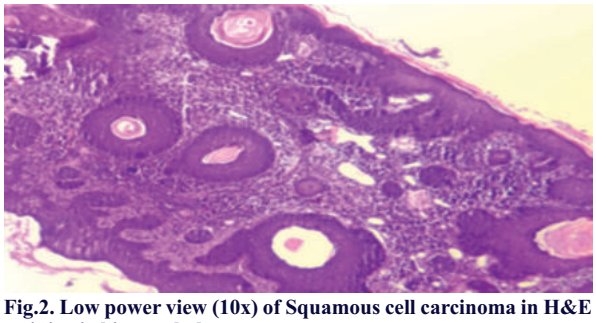

Fig.2. Low power view (10x) of Squamous cell carcinoma in H&E staining in histopathology

CONCLUSION

Ear lesions can involve all age groups, non neoplastic lesions being common in adolescents and young adults and neoplastic lesions being common in older age groups. Histopathology is a key tool in differentiating aural lesions. The results of this study will serve as baseline for further studies and contribute in reducing morbidity and mortality due to ear lesions.

REFERENCES

1. Kumar, Abbas and Fausto, Robbins and Cotran's pathological basis of disease (2004), 7th (ed):p787–p788
2. Rosai J, Rosai and Ackerman's surgical pathology (1996), 8th edn. Mosby-Year Book, St. Louis: p2509–p2516.
3. Loury M (2002) Healthopedia.com, medical encyclopedia, disease and conditions, Aural Polyps.
4. Piepergerdes JC, Kramer BM, Behnke EE. Keratosis obturans and external auditory canal cholesteatoma. Laryngoscope. 1980;90: p383–p391.
5. Kreutzer EW, De Blanc GB. Extra aural spread of cholesteatoma. Arch Otolaryngol. 1982; 108(5):p320–p322.
6. Caponetti G, Thompson LD, Pantanowitz L. Cholesteatoma. Ear Nose Throat J. 2009;88(11):p1196–p1198.
7. Avila J, Bosch A, Aristizibal S, Frias Z, Marcial V, Carcinoma of pinna. Cancer (1977) 40: p2891–p2895.
8. Lewis JS, Squamous carcinoma of ear. Arch Otolaryngol (1973) 97(1): p41–p42.
9. Shiffman NJ, Squamous cell carcinoma of the skin of pinna. Can J Surg (1975) 18: p279–p283.
10. Hendricks WM. Complications of ear piercing: treatment and prevention. Cutis. 1991 Nov;48(5):p386-94.
11. Agarwal NM, Popat VC, Traviad C, Srivastava A. Clinical and histopathological study of mass in ear: a study of fifty cases. Indian J Otolaryngol Head Neck Surg. 2013;65(Suppl 3): p520-p525.
12. Martinez-Devesa P, Barnes ML, Milford CA. Malignant tumors of the ear and temporal bone: a study of 27 patients and review of their management. Skull Base. 2008;18(1):p1-p8.
13. Blake G.B., Malignant tumours of the ear and their treatment. British Journal of Plastic Surgery, Volume 27, Issue 1, 1974 Jan, 67 - 76