ORIGINAL RESEARCH PAPER

Radiodiagnosis

EVALUATION OF CHRONIC SUPPURATIVE OTITIS MEDIA BY HIGH RESOLUTION COMPUTED TOMOGRAPHY OF TEMPORAL BONE A STUDY OF 50 PATIENTS

KEY WORDS:

Dr. Pankaj Kumar Yadav

M.D. Deptt.Of Radio-Diagnosis, GRMC and JAH Gwalior.M.P.,India.

Dr. Ruchi Vaishy *

Resident Deptt. Of Radio-Diagnosis, GRMC and JAH Gwalior. M.P., India. *Corresponding Author

ABSTRACT

The present study was conducted from May 2016 to Sept 2017 in Dept of Radiodiagnosis GRMC Gwalior. In this study total 50 patients of CSOM were selected .The purpose was to study the role, value and impact of high resolution computerized tomography in detecting ,evaluating and diagnosis of chronic suppurative otitis media

A total number of 50 patients with CSOM were selected. The age of patients range from 4 yrs to 55 yrs with maximum patients was falling between 11-20 yrs (46%).In our study the overall sex distribution showed female predominance . Male :female ratio was 0.8: 1 with males being 23 and female being 27 in number .X ray mastoid and HRCT temporal bone was done in every patient. Key feature to be considered are soft tissue mass in both safe and unsafe CSOM and non dependent soft tissue mass in patient with cholesteatoma, scutum and ossicular erosion, labyrinthine fistula, sigmoid sinus plate erosion, mastoid cortex erosion, tegmen erosion, and mastoiditis,the integrity or erosion of dural plate, sinus plate, lateral semicircular canal and lateral cortical wall. The erosion of ear ossicles - malleus and incus and stapes. In our study there are 50 patients ,among them 23 patients had tubotympanic{ SAFE TYPE} and 27 patients had atticoantral{ UN SAFE TYPE} disease or cholesteatoma on intraoperative confirmation .But HRCT diagnosis of cholesteatoma was made in 29 patients and in 21 patients with safe CSOM. , HRCT finding of cholesteatoma was found in 18 patient with 90.9% sensitivity and 100 % specificity . In our study ,HRCT had 90.7% sensitivity and 100 % specificity in detecting cholesteatoma in epitympanum, in mesotympanum 92.80% sensitive and 97.3 % specific , in cases of antrum it is 94.1% sensitive and 94.2 % specific ,for aditus 85% sensitivity and 100 % specificity .For mastoid pnematization, scutum erosion and cochlear erosion HRCT is 100% sensitive and specific . 94.7% sensitive malleus erosion and 92% sensitive for incus erosion but 100% specific, 33.33% sensitive but 100% specific for facial canal dehiscence, sensitivity and specificity of HRCT to detect the tegmen tympani erosion was found to 100% and 97.9% , 100% sensitive in detecting cortical erosion of mastoid.Xray is found to be 100% sensitive and specific for mastoid pneumatisation.

HRCT scans of the temporal bone have significantly enhanced the preoperatively evaluation of CSOM .This study has shown that the CT imaging for CSOM accurately depicts soft tissue mass .

INTRODUCTION

Disorders of the middle ear are common in the population like acute otitis media (AOM), otitis media with effusion (OME), chronic suppurative otitis media (CSOM), mastoiditis and cholesteatoma. CSOM incidence rate is 4.76%, equating to 31million cases with 22.6% of cases occurring annually in the under 5years of age.

50% of CSOM patients suffer from hearing impairment. Worldwide there are between 65-330 million people affected of whom 60% receive significant hearing loss. This burden falls disproportionately in children of developing countries. [1]

Middle ear disease can present as ear pain, otorrhoea, hearing impairment and other symptoms. The symptoms vary between individuals in character and intensity. Some of the middle ear diseases (e.g., inflammation and neoplastic disease) can become serious medical problems if not identified and treated with involvement of the inner ear, brain and systems beyond. OM is a leading cause of health care visits worldwide and its complications are important causes of preventable hearing loss particularly in the developing world.[1]

OM is pathology of the middle ear and middle ear mucosa, behind the ear drum (tympanic membrane). Other important near by structures are the brain and meninges superiorly and the sigmoid sinus posteriorly and any infection of the middle ear can spread to surrounding structures with serious results.

There are spectrum of OM[2], these include **acute otitis media(AOM), otitis media with effusion (OME), chronic suppurative otitis media (CSOM), mastoiditis and cholesteatoma.** They are generally described as discrete diseases but in reality there is a great degree of overlap between the different types. OM can be seen as a continuum/spectrum of diseases:

- AOM is acute inflammation of the middle ear and may be caused by bacteria or viruses. A subtype of AOM is acute suppurative OM, characterised by the presence of pus in the middle ear. In around 5% the eardrum perforates.

- OME is a chronic inflammatory condition without acute inflammation which often follows a slowly resolving AOM. There is an effusion of glue-like fluid behind an intact tympanic membrane in the absence of signs and symptoms of acute inflammation.

- CSOM is long-standing suppurative middle ear inflammation, usually with a persistently perforated tympanic membrane.

- Mastoiditis is acute inflammation of the mastoid periosteum and air cells occurring when AOM infection spreads out from the middle ear.

- Cholesteatoma occurs when keratinising squamous epithelium (skin) is present in the middle ear as a result of tympanic membrane retraction.

It is important to differentiate between the two types of CSOM with or without cholesteatoma as chronic otitis media with cholesteatoma has high risk of complications which can lead to life threatening conditions. An important finding which can help differentiate the two conditions is bony erosion. Erosion of the lateral wall of the epitympanum and of the ossicular chain is common in cholesteatoma (around 75%). Cholesteatoma can present with a non-dependent soft tissue mass while chronic otitis shows thickened mucosal lining. However in both diseases the middle ear cavity can be completely opacified , obscuring a cholesteatoma.[3]

Careful and thorough evaluation is needed for the early diagnosis and treatment of the disease, to prevent complications and preserve hearing. The extent of disease often will determine the aggressiveness of the surgical approach. [4,5] The various associated complications like facial nerve paralysis, labyrinthine fistula, and intracranial complications are well recognized preoperatively by careful interpretation of the appropriate imaging. Early recognition of the disease is important to adopt a surgical procedure to save the patient from loss of hearing and to prevent grave intracranial complications.

Temporal bone imaging is challenging and involves deep understanding of the anatomy, especially in relation to High Resolution Computed Tomography (HRCT) imaging. Cross-sectional imaging has evolved rapidly and has surpassed the radiography and plain film tomography. [6,7] Most of the middle ear pathologies appear as soft tissue attenuation on HRCT. [8,9] The final diagnosis is usually a combination of radiological and clinical findings. [6] HRCT excels in the evaluation of the middle ear disease process and adjacent bone.

OBSERVATIONS AND RESULTS
AGE DISTRIBUTION
- In our study the age group ranged from 4 to 55 years, youngest patient was 4 yrs and oldest patient was 55years old .
- The maximum patients was falling between 11-20 yrs (46%).
- The mean age was 23.6 years with SD +_11.39 years .
- Out of 50 patients among the symptomatology the most common presenting symptom was ear discharge present in 50 patients (100%).Other symptoms i.e. ear ache was found in 16(32%) patients , hearing loss in 31(62%) ,tinnitus in 5(10%) ,vertigo in 6(12%) ,fever in 5(10%), headache in 3(6%), post auricular swelling in 3(6%) patients, facial palsy in 3(6%) and nystagmus in 1(2%) patients.
- On clinico- otoscopic examination, attic perforation were found in 10 patient (20%), Marginal were found in 12 patients (24%), 19(38%) patients had central perforation .
- In this study, tympanic membrane were not visualized on examination in 9(18 %) patients due to polyp in external auditory canal.
- X Ray mastoid was found to 100% sensitive and specific in diagnosing the mastoid pneumatisation with well pneumatisation in 44% ,sclerotic in 54%, hypopneumatised in 4% of patients .
- Among 50 patients in this study , well pneumatised mastoid seen in 42%, hypopneumatised 4% ,sclerotic in 54% patients.
- Low lying dura was seen in 2% of patients.
- In this study, HRCT was found to be 100% sensitive and specific in correctly diagnosing the mastoid pneumatisation and low lying dura.
- In our study there were 50 patients ,among them 23 patients had tubotympanic{ SAFE TYPE} and 27 patients had atticoantral{ UN SAFE TYPE} disease .
- HRCT correctly diagnosed 21 patients with tubotympanic disease out of the 23 patients with tubotympanic disease.
- HRCT correctly diagnosed 27 patients with atticoantral disease and 2 patients were incorrectly diagnosed as atticoantral disease who had tubotympanic disease .
- In our study there were 29 patients which were diagnosed as unsafe CSOM but intraoperatively only 27 were diagnosed as unsafe CSOM .
- Among 27 patients who were intraoperatively diagnosed ossicle erosion were found in 27 patients intraoperatively but only in 23 patients on HRCT .
- HRCT detected erosion in malleus correctly in 94.7% cases with 94.7% sensitive and 100% specificity to diagnose malleus erosion.
- In detecting erosion of Incus HRCT was only 92% sensitive but 100% specific .
- Involvement of the stapes could not be analyzed due to inconsistent visualization on CT scan
- In our study ,soft tissue density seen in epitympanum in 27(54%) patients.Out of 27 patients soft tissue density with bone erosion seen in 18 patients .
- Soft tissue density seen in mesotympanum in 20 (40%) patients.Out of 20 patients soft tissue density with bone erosion seen in 14 patients .
- Soft tissue density seen in hypotympanum in 18(36%) patients.Out of 18 patients soft tissue density with bone erosion seen in 12 patients .
- Soft tissue density seen in antrum in 24(48%) patients.Out of 24 patients soft tissue density with bone erosion seen in 18 patients .
- Soft tissue density seen in aditus in 27 (54%) patients.Out of 27 patients soft tissue density with bone erosion seen in 14 patients.
- Soft tissue density seen in mastoid air cells in 20 (40 %) patients.Out of 20 patients soft tissue density with bone erosion seen in 14 patients .
- In our study, all these patients soft tissue density with bone erosion represented cholesteatoma and all these patients without bone erosion represented safe CSOM.
- In our study,there were 50 patients ,out of them 23 patients had tubotympanic{ SAFE TYPE} and 27 patients had atticoantral{ UN SAFE TYPE} disease or cholesteatoma on intraoperative confirmation .
- HRCT diagnosis of cholesteatoma was made in 29 patients with 3 patients were falsely positive and 1 patient was falsely negative diagnosed .Overall sensitivity of HRCT in diagnosing the cholesteatoma was found to be 96.4% and specificity of 88.4%.
- HRCT diagnosis of safe CSOM was made in 21 patients with 1 patient was falsely positive and 3 patient were falsely negative diagnosed .Overall sensitivity of HRCT in diagnosing the safe CSOM was found to be 86.9% and specificity of 96.4% with an accuracy of 92.4%.

DISCUSSION
The present study was conducted from May 2016 to Sept 2017 in Department of Radiodiagnosis GRMC Gwalior. In this study total 50 patients of CSOM were selected .

AGE DISTRIBUTION
In this study ,total number of 50 patients with CSOM were selected those who were referred from Department of ENT . The mean age was 23.6 years which was little less than the study by **Germi et al**[42] **, Paparella and Kim**[58], who claimed an average of 35.1 years. The maximum patients were falling between 11-20 years (46%), youngest was 4 years and oldest was 55years.

SEX DISTRIBUTION
In our study the overall sex distribution showed female predominance . Male :female ratio was 0.8: 1 with males being 23 and female being 27 in number .This was similar to study with **Petros V Vlasharakos et al**[59]in which ratio was 0.9 :1.With respect to CSOM being the major temporal bone pathology ,no gender wise difference in prevalence of CSOM has been reported in the community study.

SYMPTOMATOLOGY
Out of 50 patients among the symptomatology, the most common presenting symptom was ear discharge which was presented in all 50 patients (100%).This in accordance with the study done by **Nanjaraj et al**[54] in which all 100 % patient had ear discharge. Other symptoms ear ache was found in 16(32%) patients, hearing loss 31(62%), tinnitus in 5(10%) ,vertigo in 6(12%), fever in 5(10%), headache in 3(6%) ,post auricular swelling in 3(6%) patients ,facial palsy in 3(6%) and nystagmus in 1(2%) patients.

Thus found that the otorrhea i.e ear discharge ,hearing hearing loss, ear ache seemed to be predominant symptoms in the patients with CSOM while other symptoms had variable frequency. Among the patients with ear discharge right ear discharge was seen in 52 % ,left ear discharge in 48% .

OTOSCOPIC FINDINGS
On clinico-otoscopic examination attic perforation was found in 10 patient (20%) in comparison to 9 patients in study series found by **Nanjaraj et al**[54] .Marginal perforation was found in 12 patients (24%),19(38%) patients had central perforation which was more than **Nanjaraj et al**[54] study . .In this study tympanic membrane was not visualized on examination in 9(18 %)patients due to polyp in external auditory canal.

TYPE OF DISEASE
- In our study there was 50 patients ,among them 23 patients had tubotympanic{ SAFE TYPE} and 27 patients had atticoantral{ UN SAFE TYPE} disease or cholesteatoma on intraoperative confirmation .
- HRCT diagnosis of cholesteatoma was made in 29 patients with 3 patients were false positive and 1 patient was false negatively diagnosed .Overall sensitivity of HRCT in diagnosing

the cholesteatoma was found to be 96.3% and specificity of 88.4% which is found to be more as compared to **Ranga Reddy Sirgiri**[46] where CT was 92% sensitive and 66% specific
- HRCT diagnosis of safe CSOM was made in 21patients with 1 patients was falsely positive and 3 patient were false negatively diagnosed .Overall sensitivity of HRCT in diagnosing the safe CSOM was found to be 86.9% and specificity of 96.4% with a PPV of 90% and NPV 95.2%.

MASTOID PNEUMATISATION
- Among 50 patients in this study well pneumatised mastoid seen in 42%, hypopneumatized 4% ,sclerotic in 54% patients.In this study , low lying dura was seen in 2% of patients on HRCT.

In this study ,HRCT was found to be 100% sensitive and specific in correctly diagnosing the mastoid pneumatisation and low lying dura and was similar to the intraoperative findings. Therefore, when statistically tried, the results of the 2 categories were at par with no difference. Sensitivity and positive predictive value of HRCT were found to be 100%. These values was comparable to studies by **Ashwani Sethi et al**[60] and **Vlastarakos et al**[59] .

In this study ,low lying dura was correctly detected in 2% of patient by HRCT giving it 100% sensitive and specificity correlation with studies done by **Zhang et al** [40]**and Chee N W et al.**[36]

Mastoid was found to be well pneumatised in 44% , hypopneumatised in 4%,sclerotic in 54% in X ray mastoid Schullers view as well as intraoperatively .Hence X ray is 100% sensitive and specific to know type of mastoid pneumatisation.

SOFT TISSUE MASS
In this study ,soft tissue opacity was present in 100 % patients with chronic otitis media which was identified correctly with HRCT .This was more than that of by **Ranga Reddy Sirgiri**[46] study in which 92% patients had soft tissue opacity .

In our study HRCT diagnosis of non dependent soft tissue opacity had sensitivity of 96.3 % which was more than in study of **Nanjaraj al**[54] and **Mafee et al**[32] and **O Reilly et al**[33] , however the specificity in our study was comparable to study of **Nanjaraj al**[54] which was found to be 88,8 % ,where as **Jackler et al** [34] **and Garber et al** [38] found to be less sensitive and specific.

EXTENT OF DISEASE
In our study out of 23 patients with safe CSOM ,HRCT correctly diagnosed 20 patients with one patient over diagnosed and three patients were under diagnosed and overall sensitivity 86.9% and specificity 96.4%, PPV 90% and NPV 95.2% on HRCT. Out of the 27 patients with unsafe CSOM ,HRCT was able to correctly diagnose 26 patients whereas three patients were over diagnosed and one patient was under diagnosed with sensitivity 96.4 and specificity 88.4%,NPV 89.6% and PPV 95.8%.However ,HRCT is less sensitive in differentiating cholesteatoma from granulation tissue.

In this study in detecting soft tissue in epitympanum HRCT had 90.9 % sensitivity and 100% specificity ,PPV 100% and NPV 93.7%, similar findings by **Ranga Reddy Sirigiri et al**[46] where sensitivity was found to be 95% and specificity 100% .

In case of mesotympanum HRCT had a sensitivity of 92.8 % and 97.3% specificity,PPV 98.9 %,NPV 99.5% which was more than the study conducted by **Nanjaraj et al**[54] which shows 87.5% specificity.

In hypotympanum sensitivity of HRCT was found to 88.8% which was found to be less than **Ranga Reddy Sirigiri et al**[46] where as specificity was 90.7% ,PPV 66.6%,NPV 97.6%. In aditus sensitivity of HRCT was found to be 82.3% , which was found to be less than the study conducted by **Nanjaraj et al** [54]**and Ranga Reddy Sirigiri et al**[46] and specificity of 100%, PPV 100%, NPV 91.6%. Sensitivity of identified the diseased process in antrum was found to be 94.1% and specificity of 94.2% which was similar to

Nanjaraj et al study [54] but specificity was found to be more than **the Ranga Reddy Sirigiri study**[46] with PPV 88.8% and NPV 97.06% respectively.

In mastoid air cells, HRCT sensitivity was 81.8 % which was close to observation done by **Gerami et al**[42] and specificity was 88.6% which was less than the above mentioned study with a NPV 95.1% and PPV 64.2% respectively.

The extent of involvement of middle ear and mastoid in cholesteatoma on HRCT were as follows-epitympanum, antrum, aditus ,mastoid air cells, mesotympanum and hypotympanum respectively.

OSSICULAR EROSION
In this study HRCT correctly detected ossicular erosion in 85.1% cases which was similar to studies by **Mafee et al**[32] **and Schwartz et al**[62,] **Garber and Dort** [38] but contrasts with study by **O'Reilly BJ** [33] where poor correlation was seen. Most commonly involved ossicle involved in this study was incus which was similar to studies by **Mafee et al**[33] **and Jackler et al** [34].HRCT detected erosion in malleus correctly in 94.7% cases with 94.7% sensitive and 100% specificity,PPV 100% and NPV 96.8% to diagnose malleus erosion. In detecting erosion of Incus HRCT was only 92% sensitive but 100% specificity ,PPV 100% and NPV 92.5 %. Involvement of the stapes could not be analyzed due to inconsistent visualization on CT scan. Most authors had the same problem except **O'Donoghue**[50] who reported that they could diagnose destruction of stapes suprastructure in 86% of the cases.

FACIAL CANAL DEHISCENCE
The present study showed intact facial nerve canal in 48 (96%) patients and eroded in 2 (4%) patients on HRCT . The latter findings were confirmed peroperatively in 6 (12%) cases .In Present study HRCT reported 4 false negative cases for facial canal dehiscence, making it 33.33% sensitive but 100% specific with PPV 100% and NPV 91.6% . Similar results were also observed by **Alzoubi et al.** [43] but poor and insignificant correlation between the two was reported by **Jackler et al,** [34] , **Rocher et al,** [35] **Chee and Tan,** [36] **Zhang et al,** [40] **Gerami et al.** [42] however **Mafee et al**[33] reported HRCT to be 100% accurate. **Datta et al** [35] reported the specificity, positive and negative predictive value to be comparable with the present study but a higher sensitivity of 75%, while **Magliulo et al.** [61] in their study, observed a sensitivity and specificity of 69% and 87%, respectively.

Tegmen erosion
In present study, sensitivity, specificity, PPV and NPV of HRCT to detect the tegmen tympani erosion was found to 100% , 97.9%, 80% and 100% respectively which was similar to that found in **Kanotra et al**[56] which reported sensitivity to be 100% and specificity 95.45%. when it was compared to the gold standard (intraoperative findings). A similar specificity rate of 95% was reported by **Gerami et al**[42] and a specificity rate of 91.93% and NPV 100% was also reported by **Prata et al**[52] **and Datta et al**[35].A similar value of 100% sensitivity of HRCT, was also reported by **Rocher et al.,**[35] **Zhang et al.,**[40] **Alzoubi et al.,**[43] **and Datta et al.** [35]**Gerami et al.**[42] reported the sensitivity to be 6%,50%,60%, which was quite low as compared to the present study. A poor sensitivity rate of HRCT to detect tegmen tympani erosion was also reported by **Jackler et al**[34] **and O'Reilly et al.,**[33]while a moderate association was seen by **Vlastarakos et al.**[59] **and Chee and Tan.**[36]

MASTOID CORTEX EROSION &SINUS PLATE EROSION -
In our study mastoid cortex erosion was noted in 25.9% cases with cholesteatoma which was higher than seen by **Nanjaraj et al**[54] (12%) and by **Saut Keskin et al** [51](7%).Mastoid cortex erosion in our study was seen in 7 patients out of 50 patients and HRCT was 100% sensitive in detecting cortical erosion of mastoid which disagree with findings **Ranga Reddy Sirigiri et al.** [45]

Sinus plate erosion was found to be intact in 27 (93%) patients with cholesteatoma and erosion was found in 2 (6.8%) patients having cholesteatoma on HRCT. Intraoperatively sinus plate was

found to be intact in 26(89%) patients and eroded in 3(10 %) patients with cholesteatoma . In our study HRCT was found to be 66.6% sensitive in detecting this with 1 false negative case which was less than that of **Nanjaraj et al** [54] which showed 75% sensitivity in detecting the sinus plate erosion . Finding in our study was in contrast to the study by **Petros V Vlasharakos et al**[59] and **Ginni Datta et al.**[35] where it was 100% sensitive and specific.

In our study, scutum erosion noted in 48% of cases with cholesteatoma and was accurately detected in all the cases .This was present in 13 cases and detected in all 13 case intraoperatively with 100% sensitivity , specificity and PPV. This was in accordance to study by **Rocher et al** [35] but contrast with the study by **Vlasharakos et al**[59] where no correlation was found.

Erosion of lateral semicircular canal was seen in 2 patients in HRCT but was found in only 1 patient intraoperatively with one false positive case and sensitivity of 100 %, specificity of 98% which was in agreement with the study done by **Ranga Reddy Sirigiri et al.** [45] where it was 100 % sensitive and 94% specificity. Similar findings was also noted in study of **Alzoubi et al**[43]**,Chee** and **Tan**[36]**, Mafee et al** [37] and **Rocher.**[35]

HRCT detected intracranial complication , correctly giving it 66.6 % sensitive and 100% specificity,NPV 97.9% and PPV 100%.

In this study cochlear erosion was found in 4% of patient .HRCT was100 % sensitive and specific in detecting with a PPV of 100 % and NPV 100%.This was similar to study by **Alzoubi et al .**[43]

CONCLUSION
CSOM is a common disease that can have serious, life threatening complications. As such early diagnosis and treatment is of importance for a good patient prognosis. HRCT of temporal bone is of great value in the diagnosis and preoperative assessment of a case of CSOM. Patients usually present with otorrhoea. Other symptoms include hearing loss, otalgia, vertigo, tinnitus, fever with chills and rigors, headache, nausea, vomiting, swelling behind the ear and facial weakness.

CSOM can be at times life-threatening and warrants that all Otolaryngologist surgeons be familiar with the standard approach to these patients. Advent of HRCT and improvements in radiological technique has definitely improved study of the temporal bone in patients with CSOM, which includes evaluation of the extent and sites of involvement and inter-relationships of the tympanomastoid compartment with adjacent neurovascular structures.

The CT scan is the standard imaging technique for the temporal bone. The various findings observed on HRCT in the patients with CSOM are nondependent soft tissue mass, scutum and ossicular erosion, sigmoid sinus plate erosion, mastoid cortex erosion, tegmen erosion, and mastoiditis. HRCT also effectively depicts the integrity or erosion of sinus plate, lateral semicircular canal . The erosion of ear ossicles - malleus and incus were well depicted in the study. However, we could not effectively depict the integrity or erosion of facial nerve canal and more so the status of stapes. In ossicular erosion, incus was most commonly involved followed by malleus. Most of the mastoids in this study were sclerotic followed by pneumatised and hypopneumatised.The role of plain film radiography is found to be good to know the type of mastoid pneumatisation .

Overall, the results of the present study showed a good agreement between HRCT and operative findings. HRCT temporal bone is an efficacious modality for accurate delineation of the anatomy and pathological involvement of temporal bone. We can hence conclude HRCT is useful for diagnosis, surgical planning and management of temporal bone pathologies.

It was found that computed tomography despite of its pitfalls such as more radiation exposure and higher cost delineates the location and extent of the disease, and provides information on anatomical variations and complications. It serves as a road map to assist the surgeon during surgery.

Therefore this study concludes that HRCT can be recommended not only in cases suspected with potential complications but also in all cases of CSOM to know the extent of disease, varied pneumatisation and the presence of anatomical variations, which should alert the clinician and guide in surgical approach and treatment plan. A skillful, aware, and alert surgeon still remains the key to successful diagnosis and surgical treatment of CSOM. In our study, HRCT done on 128 slice scanner Siemens SOMATOM Definition AS+ CT scanner machine using thin sections and provide good resolution, showed high sensitivity and specificity in detecting the CSOM and its extent and associated complication

SUMMARY
The present study was conducted from May 2016 to Sept 2017 in Dept of Radiodiagnosis GRMC Gwalior. In this study total 50 patients of CSOM were selected .The purpose was to study the role, value and impact of high resolution computerized tomography in detecting ,evaluating and diagnosis of chronic suppurative otitis media.

A total number of 50 patients with CSOM were selected. The age of patients range from 4 yrs to 55 yrs with maximum patients was falling between 11-20 yrs (46%).In our study the overall sex distribution showed female predominance . Male :female ratio was 0.8: 1 with males being 23 and female being 27 in number .X ray mastoid and HRCT temporal bone was done in every patient. Key feature to be considered are soft tissue mass in both safe and unsafe CSOM and non dependent soft tissue mass in patient with cholesteatoma, scutum and ossicular erosion, labyrinthine fistula, sigmoid sinus plate erosion, mastoid cortex erosion, tegmen erosion, and mastoiditis,the integrity or erosion of dural plate, sinus plate, lateral semicircular canal and lateral cortical wall. The erosion of ear ossicles - malleus and incus and stapes. In our study there are 50 patients ,among them 23 patients had tubotympanic{ SAFE TYPE} and 27 patients had atticoantral{ UN SAFE TYPE} disease or cholesteatoma on intraoperative confirmation .But HRCT diagnosis of cholesteatoma was made in 29 patients and in 21 patients with safe CSOM. , HRCT finding of cholesteatoma was found in 18 patient with 90.9% sensitivity and 100 % specificity . In our study ,HRCT had 90.7% sensitivity and 100 % specificity in detecting cholesteatoma in epitympanum, in mesotympanum 92.80% sensitive and 97.3 % specific , in cases of antrum it is 94.1% sensitive and 94.2 % specific ,for aditus 85% sensitivity and 100 % specificity .For mastoid pnematization, scutum erosion and cochlear erosion HRCT is 100% sensitive and specific . 94.7% sensitive malleus erosion and 92% sensitive for incus erosion but 100% specific, 33.33% sensitive but 100% specific for facial canal dehiscence, sensitivity and specificity of HRCT to detect the tegmen tympani erosion was found to 100% and 97.9% , 100% sensitive in detecting cortical erosion of mastoid.Xray is found to be 100% sensitive and specific for mastoid pneumatisation.

HRCT scans of the temporal bone have significantly enhanced the preoperatively evaluation of CSOM .This study has shown that the CT imaging for CSOM accurately depicts soft tissue mass .