Journal of Cardiovascular Disease Research

ISSN:0975 -3583,0976-2833 VOL 15, ISSUE 08, 2024

**Original research article**

# Clinical, radiological and intra-operative plan for management of CSOM

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**Abstract**

The middle ear cleft consists of the tympanic cavity, the Eustachian tube and the mastoid air cell system. The tympanic cavity is an irregular, air filled space within the temporal bone between the tympanic membrane laterally and the osseous labyrinth medially. It contains the auditory ossicles and their tendons that attach them to the middle ear muscles. CSOM patients who are planned for surgical management underwent HRCT Temporal Bone Scan before surgery. Intra operative findings of middle ear cleft in such patients was noted and compared with the pre-operative HRCT TEMPORAL BONE scan findings. The most common Intra-operative plan after radiological plan was cortical mastoidectomy

**Keywords:** Clinical, radiological, intra-operative plan, management of CSOM

## Introduction

Ear has been separated in to three parts for descriptive purposes; external, middle and internal. Ear forms a major part of the communication system in many animals including human beings [1]. The ear plays a major part in the balance system giving important information about sudden changes in the environment, both external and self, to avoid falls and injury. Here we can discuss more in detail about the anatomy of middle ear cleft [2, 3].

The middle ear cleft consists of the tympanic cavity, the Eustachian tube and the mastoid air cell system [4]. The tympanic cavity is an irregular, air filled space within the temporal bone between the tympanic membrane laterally and the osseous labyrinth medially. It contains the auditory ossicles and their tendons that attach them to the middle ear muscles. Other structures, including the tympanic segment of the facial nerve, run along its walls to pass through the cavity. The cleft‘s function is to amplify sound and deliver it to the inner ear [5, 6].

**The tympanic cavity is notionally divided into three compartments:** The epitympanum (upper), the mesotympanum (middle) and hypotympanum (lower) [7].

The epitympanum or attic, lies above the level of the malleolar folds and is separated from the mesotympanum and hypotympanum by a series of mucosal membranes and folds [8].

The hypotympanum lies below the level of the inferior part of the tympanic sulcus and is continuous with the mesotympanum above.

## Methodology

### Source of data

CSOM patients presenting to hospital which is a tertiary care centre and who are undergoing ear surgery.

### Methods of collection of data

- CSOM patients who are planned for surgical management underwent HRCT temporal bone scan before surgery.

ISSN:0975 -3583,0976-2833 VOL 15, ISSUE 08, 2024

- Intra operative findings of middle ear cleft in such patients was noted and compared with the pre operative HRCT TEMPORAL BONE scan findings.

**Design of study:** Cross Sectional Comparative Study.

**Sample size:** 180 patients.

**Inclusion criteria**
CSOM patients above 10 years who are undergoing ear Surgery

**Exclusion criteria**
- Patients with revision surgery.
- Patients with congenital anomalies of temporal bone.
- Patients with other temporal bone diseases.

**Results and Discussion**

**Table 1:** Clinical, radiological and intra-operative plan

| Plan | Number | Percentage |
|---|---|---|
| **Clinical plan** | | |
| MT plasty | 107 | 59.4 |
| Tympanoplasty | 63 | 35.0 |
| Canal wall down mastoidectomy | 7 | 3.9 |
| Cortical mastoidectomy | 2 | 1.1 |
| Exploratory T plasty | 1 | 0.6 |
| **Radiological plan** | | |
| MT plasty | 6 | 3.3 |
| Tympanoplasty | 77 | 42.8 |
| Canal wall down mastoidectomy | 52 | 28.9 |
| Cortical mastoidectomy | 44 | 24.4 |
| Exploratory T plasty | 1 | 0.6 |
| **Intra-operative** | | |
| MT plasty | 0 | 0 |
| Tympanoplasty | 79 | 43.9 |
| Canal wall down mastoidectomy | 43 | 23.9 |
| Cortical mastoidectomy | 55 | 30.6 |
| Exploratory T plasty | 1 | 0.6 |
| Subtotal petrosectomy | 2 | 1.1 |

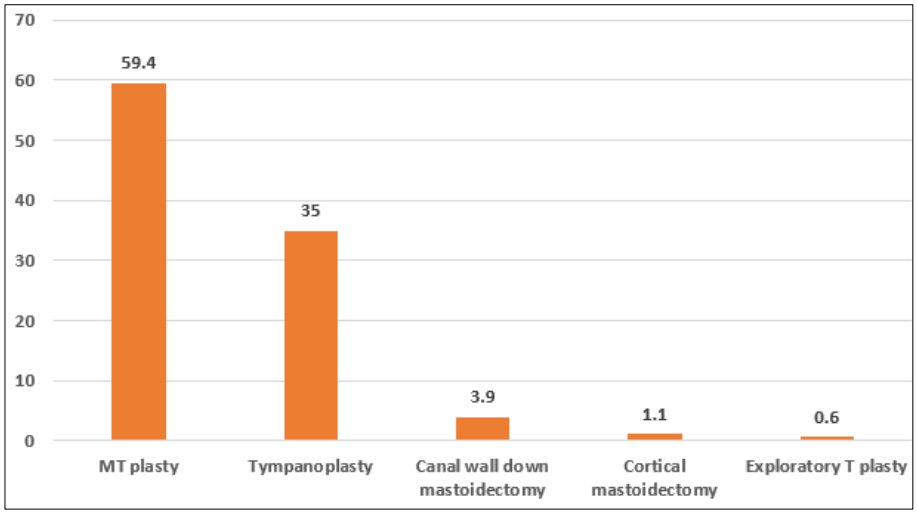


**Fig 1:** Clinical plan

ISSN:0975 -3583,0976-2833 VOL 15, ISSUE 08, 2024

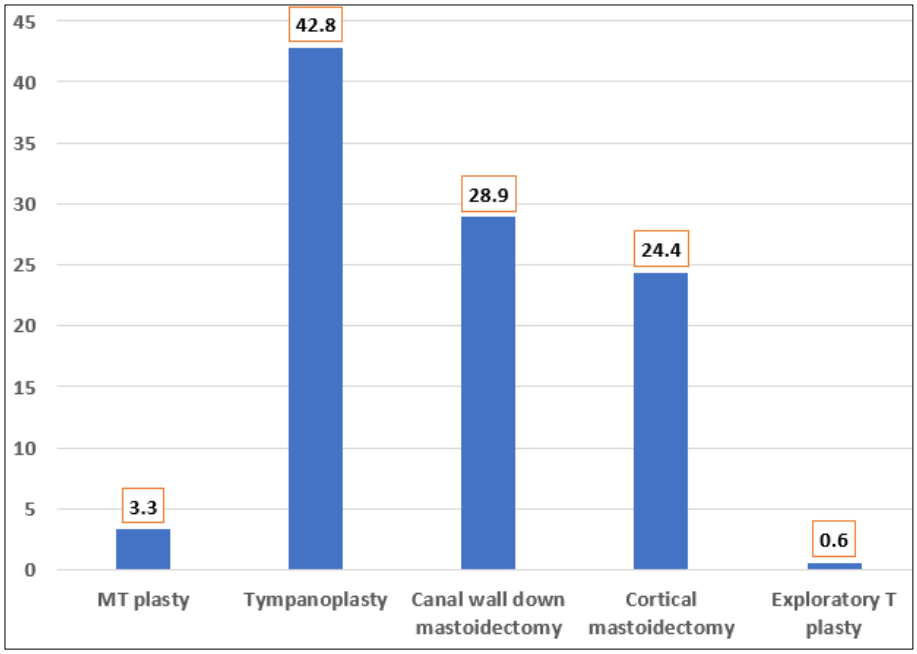


**Fig 2:** Radiological plan

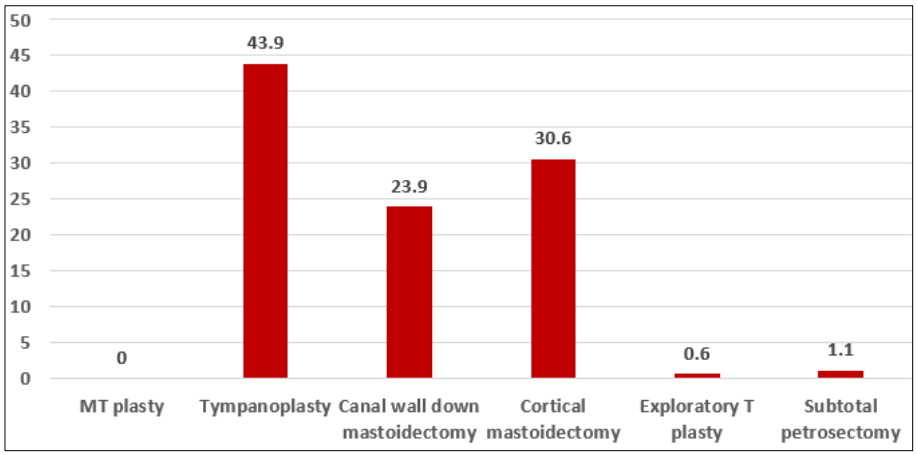


**Fig 3:** Intra-operative

**Table 2:** Radiological plan after clinical plan

| Clinical plan | N | Radiological plan | N | % |
|---|---|---|---|---|
| MT plasty | 107 | MT plasty | 6 | 5.6 |
| | | Tympanoplasty | 15 | 14.0 |
| | | Canal wall down mastoidectomy | 45 | 42.1 |
| | | Cortical mastoidectomy | 41 | 38.3 |
| Tympanoplasty | 63 | Tympanoplasty | 62 | 98.4 |
| | | Cortical mastoidectomy | 1 | 1.6 |
| Canal wall down mastoidectomy | 7 | Canal wall down mastoidectomy | 7 | 100.0 |
| Cortical mastoidectomy | 2 | Cortical mastoidectomy | 2 | 100.0 |
| Exploratory T plasty | 1 | Exploratory T plasty | 1 | 100 |

**Table 3:** Table Intra-operative plan after radiological plan

| Radiological plan | N | Intra-operative plan | N | % |
|---|---|---|---|---|
| MT plasty | 6 | Cortical mastoidectomy | 61 | 100.0 |
| Tympanoplasty | 77 | Cortical mastoidectomy | 77 | 100.0 |
| Canal wall down mastoidectomy | 52 | Canal wall down mastoidectomy | 43 | 82.7 |
| | | Cortical mastoidectomy | 7 | 13.4 |
| | | Subtotal petrosectomy | 2 | 3.9 |
| Cortical mastoidectomy | 44 | Cortical mastoidectomy | 42 | 4.6 |
| | | Tympanoplasty | 2 | 95.4 |
| Exploratory T plasty | 1 | Exploratory T plasty | 1 | 100.0 |

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**Table 4:** Clinical plan and Intra-operative plan

| Clinical plan | N | Intra-operative plan | N | % |
|---|---|---|---|---|
| MT plasty | 107 | Tympanoplasty | 17 | 15.9 |
| | | Canal wall down mastoidectomy | 38 | 35.5 |
| | | Cortical mastoidectomy | 52 | 48.6 |
| Tympanoplasty | 63 | Tympanoplasty | 62 | 98.4 |
| | | Cortical mastoidectomy | 1 | 1.6 |
| Canal wall down mastoidectomy | 7 | Canal wall down mastoidectomy | 5 | 71.4 |
| | | Subtotal petrosectomy | 2 | 28.6 |
| Cortical mastoidectomy | 2 | Cortical mastoidectomy | 2 | 100.0 |
| Exploratory T plasty | 1 | Exploratory T plasty | 1 | 100.0 |

**Conclusion**

The most common Intra-operative plan after radiological plan was Cortical mastoidectomy

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