A Clinical Study of *Karnashoola w.s.r. to Otomycosis* and its management with Honey (*Madhu*)

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Otomycosis is one of the most common disease in ENT clinics, specially in costal area like Jamnagar.

Fungal Infection of External Auditory Canal is called Otomycosis.

It is characterized by Otalgia, Itching, ear discharge, ear blockage, hearing loss and ringing in ear.

According to American academy of otolaryngology, prevalence of Otomycosis is 5.2% all over world and 9.00% in India.

Further 5-25% of otitis externa cases are due to Otomycosis.
• The symptoms of Otomycosis are similar to Vata – Kaphaja Karnashoola and Karna Gata Dushta Vrana.

• On removing of fungal colony, ulcer is usually seen in external Auditory canal and ‘Ruk’ is the Samanya Lakshana of Vrana.

• Otalgia is marked and presenting symptoms in most of the cases.

• On the basis of this, Otomycosis can be correlated with Karna Gata Dushta Vrana and also with Vata – Kaphaja Karnashoola.
Why This Topic?


- Karnapooarana with Madhu is indicated in Karnashoola and Pakva Puyayukta Karna.

- Many works were done on Otomycosis but no work was done on Madhu till today.
To study of disease Otomycosis in context to *Karna Shoola* and *Karna Gata Dushta Vrana* from both Ayurvedic and modern point of view.

To evaluate the role of Honey (Madhu) in the management of Otomycosis (Karna Shoola).
Patients were selected from the O.P.D. of Dept. of Shalakya –Tantra and referred from other dept. of I.P.G.T. & R.A., G.A.U. Jamnagar.

Patients fulfilling the criteria for selection were included into the study irrespective of caste, religion, sex etc.

A detailed history was filled up in specially prepared proforma.
Inclusion Criteria

• Age group – 11 to 70 years

• Patients fulfilling the diagnostic criteria which are based on sign and symptoms of Otomycosis (Karna Shoola).

Exclusion Criteria

• Patients aged below 10 years and above 70 years were excluded.

• Patients having perforated tympanic membrane.

• Patients having atticoantral type of CSOM.

• Patients suffering from any chronic debilitating disease like Ca, Koch’s, HIV etc were excluded from study.
Laboratory Investigations

Hematological
- Hb%, TC, DC, ESR

Urine
- Routine
- Micro

Biochemical
- RBS

Microbiological
- Fungal Culture & smear examination
All the patients were divided into two groups by simple random sampling method (Lottery method).
Cleaning of EAC was done by syringing / suction / mopping before starting the treatment & also during the treatment.

<table>
<thead>
<tr>
<th>Group</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug</td>
<td>Honey <em>(Madhu)</em></td>
<td>Clotrimazole</td>
</tr>
<tr>
<td>Dose</td>
<td>4 drops thrice a day</td>
<td>4 drops thrice a day</td>
</tr>
<tr>
<td>Duration</td>
<td>7 days</td>
<td>7 days</td>
</tr>
</tbody>
</table>
## Registration of Patient

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Registered pt.</strong></td>
<td>16 pt (16 ears)</td>
<td>16 pt (17 ears)</td>
<td>32 pt (33 ears)</td>
</tr>
<tr>
<td><strong>Completed pt.</strong></td>
<td>16 pt (16 ears)</td>
<td>16 pt (17 ears)</td>
<td>32 pt (33 ears)</td>
</tr>
</tbody>
</table>
• Assessment was done by the scoring pattern of sign & Symptoms on the basis of improvement in clinical condition of patient.
<table>
<thead>
<tr>
<th>Assessment Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete Relief</td>
<td>100% relief in objective and subjective signs and symptoms.</td>
</tr>
<tr>
<td>Marked Relief</td>
<td>76 – 99% relief in objective and subjective signs and symptoms.</td>
</tr>
<tr>
<td>Moderate Relief</td>
<td>51 – 75% relief in objective and subjective signs and symptoms.</td>
</tr>
<tr>
<td>Mild Relief</td>
<td>26 – 50% relief in objective and subjective signs and symptoms.</td>
</tr>
<tr>
<td>No Relief</td>
<td>upto 25% relief in objective and subjective signs and symptoms.</td>
</tr>
</tbody>
</table>
FOLLOW UP

- After completion of the treatment, follow up was done for one month at the interval of 15 days.
OBSERVATIONS & DISCUSSION

Nidana (n=32)

- Avshyaya: 21.87%
- Pratishyaya: 40.62%
- Jalakrida: 28%
- Karnakanduyana: 56.25%
- Shasatra mithyayoga: 0%
- Shabda mithyayoga: 0%
- Jalanimajjana: 0%
Overview of isolated fungi in both group (A + B)

- Mycelia sterilia: 60.60%
- Candida albicans: 9.09%
- Mycelia sterilia + Candida albicans: 12.12%
- Aspergillus niger: 3.03%
- Aspergillus flavus: 15.63%
Chief complaints (n=33)

- Karnashoola: 100%
- Karnakandu: 100%
- Karnasrava: 100%
- Karnapratinaha: 96.97%
- Badhirya: 57.58%
- Karnanada: 72.73%
Objective parameters (n=33)

- Fungal mass: 100%
- Tenderness: 84.84%
- Erythema: 93.94%
EFFECT OF THERAPY ON CHIEF COMPLAINTS (IN %)
EFFECT OF THERAPY ON OBJECTIVE PARAMETERS (%)
## Effect of Therapy on Chief Complaints

**Group A**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Mean Diff.</th>
<th>S.D.</th>
<th>SEM</th>
<th>P</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karnashoola</td>
<td>2.125</td>
<td>0.500</td>
<td>0.125</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
<tr>
<td>Karnakandu</td>
<td>3.000</td>
<td>0.516</td>
<td>0.129</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
<tr>
<td>Karnasrava</td>
<td>1.688</td>
<td>0.479</td>
<td>0.120</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
<tr>
<td>Karnapratinaha</td>
<td>2.188</td>
<td>0.544</td>
<td>0.136</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
<tr>
<td>Badhirya</td>
<td>1.250</td>
<td>0.707</td>
<td>0.250</td>
<td>.002</td>
<td>S</td>
</tr>
<tr>
<td>Karnananda</td>
<td>1.250</td>
<td>0.452</td>
<td>0.131</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
</tbody>
</table>

*N = 16*
## Effect of Therapy on Chief Complaints

### Group B

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Mean Diff.</th>
<th>S.D.</th>
<th>SEM</th>
<th>P</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karnashoola</td>
<td>2.118</td>
<td>0.600</td>
<td>0.146</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
<tr>
<td>Karnakandu</td>
<td>2.765</td>
<td>0.664</td>
<td>0.161</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
<tr>
<td>Karnasrava</td>
<td>1.412</td>
<td>0.507</td>
<td>0.123</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
<tr>
<td>Karnapratinaha</td>
<td>1.813</td>
<td>0.544</td>
<td>0.136</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
<tr>
<td>Badhirya</td>
<td>0.889</td>
<td>0.601</td>
<td>0.200</td>
<td>0.002</td>
<td>S</td>
</tr>
<tr>
<td>Karnananada</td>
<td>1.000</td>
<td>0.426</td>
<td>0.123</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
</tbody>
</table>

N = 16
<table>
<thead>
<tr>
<th>Sign</th>
<th>Mean Diff.</th>
<th>SD</th>
<th>SEM</th>
<th>P</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fungal mass</strong></td>
<td>1.688</td>
<td>1.313</td>
<td>0.479</td>
<td>0.479</td>
<td>0.120</td>
</tr>
<tr>
<td><strong>Tenderness</strong></td>
<td>2.000</td>
<td>1.688</td>
<td>1.033</td>
<td>0.946</td>
<td>0.258</td>
</tr>
<tr>
<td><strong>Erythema</strong></td>
<td>2.333</td>
<td>1.938</td>
<td>0.617</td>
<td>0.680</td>
<td>0.159</td>
</tr>
</tbody>
</table>
Overall Assessment in (%)

Group A
- Cured: 81.25%
- Marked Relief: 12.50%
- Moderate Relief: 6.25%
- Mild Relief: 0%

Group B
- Cured: 70.58%
- Marked Relief: 11.76%
- Moderate Relief: 0%
- Mild Relief: 17.65%

Overall Assessment in (%)

[Bar chart showing the percentage distribution of different levels of assessment (Cured, Marked Relief, Moderate Relief, Mild Relief) for Group A and Group B.]
All helps to relief in the sign & symptoms of Karnashoola (Otomycosis)

Mode of Action of Honey

Kashaya Rasa, Ruksha - Tikshna Guna
Kaphashamana

Kashaya Rasa, Tikshna Guna and Sheeta Virya
Vrana Shodhana and Ropana

Madhura Rasa
Vata Shamana

Sukshma Marganusari
Removes Strotorodha
CONCLUSION

• Regular cleaning of EAC till the prohibition of new fungal growth is an essential factor for quick relief.

• By virtue of Madhura, Kashaya Rasa, Ruksh Tikshna Guna, Sheeta Virya and Vrana Shodhana, Ropana Karma, Madhu is effective in the disease of Otomycosis.

• Due to properties of Madhu, it prevents the growth of fungus and stop the recurrence of the disease.
• During the follow up period of one month no recurrence was found in patients.

• No adverse drug reaction was found during the study.

• This study can be concluded that Group A (Trial Group) is more effective than Group B (Control Group) in particular sign and symptoms of Otomycosis (*Karnashoola*).

• So null hypothesis is rejected and alternative hypothesis is accepted.
Thank you!