MATERIALS AND METHODS
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The current study consist of review of 100 patients, who were operated with the CO2 laser during the period of June 2012 to June 2014 at Department of Otolaryngology and Head & Neck Surgery, M P Shah Government Medical College, Jamnagar. In this study a combined approach, comprising both quantitative and qualitative approaches we used to collect, analyze and interpret data.

All the patients were thoroughly examined in the form of detailed clinical history, clinical examination and routine blood investigations and other necessary preoperative investigations. Patients were explained about the laser surgery and informed consent was taken from patients and relatives. In some cases USG, CT scan and other special investigations was done to confirm the diagnosis and to see the extent of lesion. The presence of any etiological factor was identified and then eliminated before treatment was undertaken. Routine follow up examination was carried out on regular basis up to six months then according to case. Most of the patients were operated under general anaesthesia and others in local anaesthesia. When general anaesthesia given, endotracheal tube was wrapped with aluminum foils and used flexometalic endotracheal tube. Bulb was inflated with methylene blue. For additional protection, the surrounding area was covered with moist-gauze and eyes protected with pads or moist gauze.

For laryngeal surgery CO2 laser was used with carl caps microscope. For microscopic CO2 laser surgery micromanipulator with 300 micron spot size at 400mm working distance was used. Clinical photographs were taken in all cases preoperatively and also during surgery and post-operatively, and results were compared. Results were compared in terms of operative time, per operative blood loss, immediate post operative pain. We also compared post operative pain, post operative healing at the interval of one week up to 2 months. The results are compared with normal cold instruments techniques.
PROFORMA

A. PARTICULAR OF PATIENTS:-
   1. Name
   2. Age
   3. Sex
   4. Religion
   5. OPD number
   6. Indoor number
   7. Address
   8. Date of Admission
   9. Date of Discharge

B. CHIEF COMPLAINTS:-
   Throat Complaint:
   a. Throat pain
      • Duration
      • Onset: Gradual / Sudden
      • Nature of Pain: Dull aching / Sharp Shooting /Throbbing
      • Continuous / Intermittent
      • Radiating: Yes / No
      • Referred: Yes / No
      *Recurrent attack: *Duration
      *No of Attack per month / Year

   b. Speech Difficulty
      • Duration
      • Onset: Gradual/Sudden
      • Continuous/Intermittent
      • Relieving/Aggravating Factor
      • Diurnal Variation
c. Difficulty in swallowing
- Duration
- Onset: Gradual / Sudden
- Continuous / intermittent
- Associated with solid, semisolid, or liquid
- Associated with symptoms of reflux

d. Neck Swelling
- Duration
- Onset: Gradual / Sudden
- Unilateral / Bilateral / Midline
- Single or Multiple
- Increasing or Not increasing: (if yes) gradually / suddenly

e. Difficulty in Breathing
- Duration
- Onset: Sudden / Gradual
- Associated with Exertion
- Nocturnal
- Noisy Breathing
- Suprasternal Retraction / Intercostal Retraction
- Choking
- Cough

Ear complaints

<table>
<thead>
<tr>
<th>Ear complaint</th>
<th>Right</th>
<th>Left</th>
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<tbody>
<tr>
<td>A. Decreased Hearing: (Yes/No)</td>
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<tr>
<td>B. Ear Discharge</td>
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<td>C. Earache (Yes/No)</td>
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<td>D. Ear Bleeding</td>
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<td>E. Tinnitus (Yes/No)</td>
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<td>F. Giddiness (Yes/No)</td>
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<td>G. History of Ear Cleaning</td>
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<td>H. Other Complaints</td>
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<tr>
<td>*Facial Asymmetry</td>
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<tr>
<td>*Headache</td>
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<tr>
<td>*Pre auricular swelling</td>
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<tr>
<td>*Post auricular swelling</td>
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<tr>
<td>*Any swelling in neck</td>
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<td>*Neck rigidity and stiffness</td>
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Nose complaints
1. Pain
2. Blockage
3. Discharge
   Unilateral / Bilateral
   Watery / Mucoid / Mucopurulent
   Blood stained
4. Headache
5. Sneezing
6. Altered smell sensation

III. Past History:
• Similar illness
• Major illness
  o Carcinoma : Neck, Bronchial
  o Thyroid Disorder
  o Gastro esophageal reflux disease
  o Poisoning
  o Neurological : Parkinson / Myasthenia Gravis / Spastic Dysphonia
• H/O Surgery :  
  o Prolonged intubation
  o Laryngeal (bronchoscopy)
  o Thyroid
  o Radical Neck Dissection
• Hypertension / Diabetes M / Ischemic heart disease / Tuberculosis / Jaundice / Bronchial Asthma
• Bleeding Disorders / Blood Transfusion
• Drug Reaction : Anaphylaxis / Angio neurotic edema
• Neck Injury or trauma

IV. Family History:

V. Personal History:
Diet: Veg. / Non Veg. / Mixed
Sleep: Adequate / Inadequate
Bowel / Bladder:
Habit:
Smoking
Tobacco Chewing
Voice Abuse
Alcohol
Repeated throat clearing
VI. **Menstrual History:**

VII. **Gynecological History:**

VIII **General Examination:**
- Pallor / Clubbing / Cyanosis
- Icterus
- Bone Joint & Spine deformity
- Edema Feet
- Lymphadenopathy

IX. **ENT Examination:**

Throat & Oral Cavity:
- Lips
- Teeth & Gums
- Tongue
- Palate
- Buccal Mucosa
- Mouth opening
- Posterior Pharyngeal Wall
- Tonsil
- Indirect Laryngoscopy
- Telesopic Examination of larynx:

Neck:

Styloid:     Right Ear     Left Ear

Ear:        
- Auricle
- Post Aural Region
- External Auditory Canal
- Tympanic membrane (Otoscope)
- Mastoid Tenderness
- Facial Weakness
- Fistula Test
- Audiological Examination:
### Tuning Fork Test

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<thead>
<tr>
<th>Tuning Fork Test</th>
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<tbody>
<tr>
<td></td>
<td>Right Ear</td>
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<tr>
<td>Rinne</td>
<td></td>
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<tr>
<td>Weber</td>
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<tr>
<td>Absolute Bone Conduction</td>
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### Nose:
- **Anterior Rhinoscopy:**
  - Vestibule
  - Turbinates
  - Septum
  - Mucosa

- **Posterior Rhinoscopy:**
  - Adenoid
  - Choana
  - Septum
  - Posterior end of turbinates
  - Eustachian Tube
  - Upper surface of soft palate

- **Nasal endoscopy**

### V. Investigation:
- Routine Investigation
  - Hb
  - TC
  - DC
  - ESR
  - RBS
  - Blood Urea
  - BGRH, BT, CT
  - Routine Urine
  - Microbiological
VI. **Radiological Investigation:**
   i) X-Ray Chest PA:
   ii) X-ray Neck with chest lateral
   iii) CT Neck with Chest

VII. Other investigations
   - FNAC
   - Sputum examination
   - Biopsy

VIII. Pediatrician/Physician/Chest Physician opinion

IX. **Clinical Diagnosis:**

X. **Treatment:**

IX. **Follow up**:
   Follow up examination was done on the first post operative day and at the time of discharge patient was instructed to follow up after 7 days and then every three weekly up to 6 months.