Marsupialization and Evacuation of Epiglottal Mucus Retention Cyst Using AcuPulse™ 40WG CO_2 Laser System with FiberLase™ Flexible CO_2 Fiber

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The FiberLase flexible fiber enabled this flexible endoscopy procedure under local anesthesia for a geriatric patient with poor general health. The CO_2 laser provided adequate hemostasis when electrocautery could not be used.

Preoperative

Past Medical History and Presenting Complaint

- 83-year-old male, poor cardiac condition, emphysema
- Progressive breathing difficulties over several months, mainly when in recumbent position
- Swallowing difficulties with coughing episodes

Relevant Physical Findings and Diagnostics

- Transnasal video endoscopy in office
  - Mucus retention cyst on lingual side of epiglottis
  - Cyst pushed epiglottis backward and downward, partially obstructing larynx

Diagnosis

- Epiglottal mucus retention cyst partially obstructing larynx

Operative

Surgical Procedure

- Due to patient's poor general health, decision was made to do a transnasal endocscopic procedure by passing the CO_2 laser waveguide through the operating channel of video endoscope
- Procedure performed in ambulatory surgery operating room

Anesthesia

- Nose and oropharynx, including tip of epiglottis, were anesthetized with lidocaine spray, 10%. In addition, 4-5 ml of lidocaine deposited into larynx through operating channel of endoscope

Operative

Laser Accessories

- FiberLase flexible CO_2 laser fiber
- Endoscope Protection Sheath to protect working channel of flexible end scope

Smoke Evacuation

- Smoke was cleared by the low-flow purge air through the fiber
- Patient instructed to hold breath while laser energy applied

Laser and Parameters

- Laser System: AcuPulse 40WG with FiberLase Flexible CO_2 Laser Fiber
- Laser Operation Mode: **CW (Continuous Wave) at 8 Watts**
- Exposure Mode and Time: **Continuous (constant) exposure**
- Because the flexible fiberoptic endoscope was used, compressed air from a compressed air tank was used to cool the fiber

Laser Technique

- Waveguide passed through operating channel of video endoscope; channel protected from tip of fiber by Lumenis sheath
- Fiber tip was positioned 3-4 mm from tissue for greater hemostasis
- The goal was to create a large hole (marsupialization) in the cyst. Once theopening was created, the cyst spontaneously evacuated. The patient wasencouraged to swallow to facilitate evacuation of the cyst.

Hemostasis

- Electrocautery was on hand, but this lesion was too remote for it to be used.
- To control bleeding, procedure was performed in CW mode with the tip of the fiber positioned 4-5 mm from the target tissue – for spreading the beam and increasing the coagulation effect. CW (Continuous Wave) laser operation mode produces the greatest hemostatic effect, particularly when power density is reduced.

Technique Tips

Balancing Precision and Hemostasis

- In this case, hemostasis was important, so precision was compromised a bit. Even when using a beam with a reduced power density in CW mode, thermal spread to adjacent tissues is minimal

Protect Patient from Smoke

- The patient should not breathe while laser energy is applied. Ask the patient to hold breath while lasing.

Endoscope Protection

- To prevent inadvertent damage to operating channel, insert fiber into sheath and then insert both into the endoscope – before inserting it into the patient.

Operative Photos

Fig. 1 Mucus retention cyst on lingual side of epiglottis

Fig. 2 Delivery of laser beam onto wall of cyst

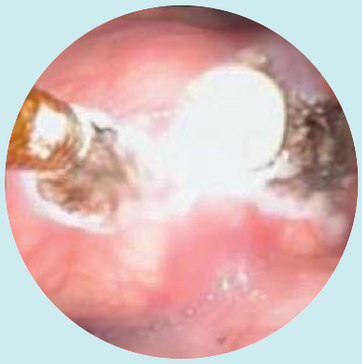

Fig. 3 Opening of cyst; mucus extruded

AcuPulse 40WG Laser Settings

Laser mode and power
CW 8 Watts

Exposure mode
Continuous (constant)

Fig. 4 Laser Settings

Fig. 5 Marsupialization of cyst

Fig. 6 Final aspect after healing (12 days)

Post-Operative

Discharge and Postoperative Instructions

- Procedure time was 12 minutes
- Discharged 30 min after procedure
- Advised to avoid swallowing until full recovery of local sensation
- Pureed food recommended for a few days

Recovery and Outcome

- Recovery was uneventful
- Experienced some pain during swallowing for 2-3 days, but no food restriction
- Breathing difficulties were fully relieved

Discussion

Thanks to the CO_2 laser waveguide, the procedure outcomes were as expected, and the pathology was successfully removed. Of course, there was more coagulation and even carbonization in the surrounding tissues, but it was not sufficient to induce an edema of the epiglottis or any swallowing disorder.

Risk Information

CO_2 lasers (10.6 µm wavelength) are intended solely for use by trained physicians. Incorrect treatment settings or misuse of the technology can present risk of serious injury to patient and operating personnel.
The use of Lumenis CO_2 laser is contraindicated where a clinical procedure is limited by anesthesia requirements, site access, or other general operative considerations. Risks may include excessive thermal injury and infection. Read and understand the CO_2 systems and accessories operator manuals for a complete list of intended use, contraindications and risks.

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