LASER ASSISTED MYRINGOTOMY AND TYPANOSTOMY
SUR714.007
POSTED DATE: 6/11/2003
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COVERAGE:

Laser-assisted tympanostomy (includes PET insertion) is considered medically necessary in patients with chronic otitis who meet criteria for conventional insertion of a PET.

Laser-assisted myringotomy (does not include PET insertion) is considered not medically necessary as a treatment of acute otitis media.

Laser-assisted myringotomy is considered experimental or investigational as an alternative to tympanostomy.

NOTE:

Myringotomy and tympanostomy are terms used interchangeably to describe an opening in the tympanic membrane.

In this policy, myringotomy will be used to describe a temporary opening in the tympanic membrane without insertion of a PET, and tympanostomy will be used to describe an opening in the tympanic membrane in conjunction with insertion of a PET.

This categorization is consistent with the CPT coding of these two procedures.

DESCRIPTION:

Insertion of a PET is indicated for continuous middle ear aeration in patients with chronic otitis media with effusion (OME). It is estimated that some 27 million cases of otitis media occur each year and that 1,000,000 children undergo PET insertion each year, making this procedure the most frequently performed pediatric surgery requiring anesthesia. Nevertheless, since conventional PET requires general anesthesia, it is typically not considered unless multiple courses of antibiotics fail to clear the infection and resolve the effusion. Myringotomy alone is less frequently performed. Since a conventional incision typically closes up within 1 or 2 days it cannot be used for prolonged ventilation of the middle ear. Myringotomies can be used to acutely decompress the ear and thus relieve pain. In addition, aspiration of fluid can be used for diagnostic purposes to determine whether the fluid is sterile and, if not, to assess antibiotic sensitivities.

Recently, laser-assisted procedures have become available, not only to perform myringotomies, but also to perform tympanostomies with PET insertion. Laser-assisted procedures can be performed in the pediatrician’s office using only local anesthesia. For example, the...
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Tympanic membrane may be anesthetized using topical tetracaine. A video monitor is used to pinpoint the exact location for the hole, and the precise size of the hole is programmed into the computer. A CO-2 flashscanner laser requires one tenth of a second to create a bloodless opening in the tympanic membrane. A PET tube may be inserted, if desired, under microscopic control. OtoLam® is a laser device approved by the U.S. Food and Drug Administration (FDA) that is intended to be used as a technique for performing myringotomies and tympanostomies.

As a surgical tool, the laser-assisted approach is an alternative to conventional myringotomy and tympanostomy. However, the opening created by a laser-assisted myringotomy may remain patent for a longer period of time (3–4 weeks) compared to conventional myringotomies (several days). Thus a laser-assisted myringotomy could be potentially considered an alternative to a conventional tympanostomy with PET insertion, a unique indication.

RATIONALE:

Chronic Otitis Media

A literature review identified two articles focusing on laser-assisted procedures in patients with chronic otitis media. Brodsky and colleagues reported on a case series of 54 patients (96 ears), aged 6 months to 23 years, who met criteria for insertion of a pressure equalizing tube (PET). These criteria included recurrent otitis media, chronic otitis media with effusion, or eustachian tube dysfunction. All patients had failed medical management. All procedures were performed in the office with the use of topical anesthesia. Pain was described as “absent” in 39%, “tolerable” in 30%, and “severe” in 30% immediately after the procedure. Within 5 minutes the pain was reported “absent” in 75%, “tolerable” in 22%, and “severe” in 5%. Ninety-two percent of parents were highly satisfied with the procedure as an alternative to PET insertion using general anesthesia. The average time of the procedure was 8.57 minutes. The authors concluded that office-based laser-assisted tympanostomy with PET insertion is possible in a broad range of patients. The advantage of the laser-assisted approach is the fact that it can be performed without the need for general anesthesia.

Silverstein and colleagues reported on a case series of 30 patients (39 ears) with persistent serous otitis media who underwent a laser-assisted myringotomy without insertion of a pressure equalizing tube. Thus the laser-assisted approach was an alternative to PET insertion, a unique indication. The otitis media was cured in 31 ears after the first treatment and in 1 patient after two treatments for an overall success rate of 75%. Four patients (5 ears) eventually required PET
insertion. The patency time (i.e., time for the myringotomy to heal) averaged 3.17 weeks. All but 2 myringotomies healed without scarring.

As addressed in the discussion section, a laser-assisted myringotomy is a unique procedure when it is considered an alternative to a conventional tympanostomy with tube insertion. The minimal time of aeration leading to resolution of chronic otitis media, while also reducing the risk of recurrent disease, is not precisely known. In the above study, laser-assisted myringotomies remained patent for an average of 3.17 weeks. In contrast, short-term PETs typically remain functional for 6-12 months, depending on the type of tube. The length of follow-up in the above study was not provided, so it cannot be determined how the long-term outcomes associated with laser-assisted myringotomy compare to conventional PET insertion. Silverstein and colleagues recommend that patients who fail short-term aeration with a laser-assisted myringotomy undergo a subsequent tympanostomy with PET insertion, although this treatment hierarchy was not a specific focus of the study.

**Acute Otitis Media**

Surgical aeration of the middle ear is indicated to acutely relieve pressure and to restore hearing. Symptoms suggestive of acute otitis media are ear pain, irritability, sleepiness in conjunction with bulging immobility of the tympanic membrane, erythema, loss of landmarks, and TM exudate. Conventional treatment of acute otitis media includes antibiotics. Problematic patients are those who continue to be symptomatic despite antibiotic therapy. Many times these patients may receive several courses of empirically chosen antibiotics. Laser-assisted myringotomy has been proposed as a technique to simultaneously provide an accurate diagnosis with the culture results used to select an appropriate antibiotic. However, this unique role of myringotomy has not been the subject of a peer-reviewed article and it is not known whether the use of the laser procedure provides any advantage compared to the conventional office-based procedure using a myringotomy knife.

**PRICING:**

There are no specific CPT codes for **laser-assisted** tympanostomy and myringotomy.

**NOTE:**

There will be no additional reimbursement for any of these procedures performed as “laser assisted”.

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REFERENCES:

- www.earinfections.org

DISCLAIMER:

State and federal law, as well as contract language, including definitions and specific inclusions/exclusions, takes precedence over Medical Policy and must be considered first in determining coverage. The member’s contract benefits in effect on the date that services are rendered must be used. Any benefits are subject to the payment of premiums for the date on which services are rendered. Medical technology is constantly evolving, and we reserve the right to review and update Medical Policy periodically.

HMO Blue Texas physicians who are contracted/affiliated with a capitated IPA/medical group must contact the IPA/medical group for information regarding HMO claims/reimbursement information and other general polices and procedures.