Public Statement:

Insertion of a pressure-equalizing tube (PET) is indicated for continuous middle ear aeration in patients with chronic otitis media with effusion (OME). Laser assisted tympanostomy and PET placement permits the procedure to be done with local anesthetic. This procedure is covered only for the diagnosis of chronic otitis or persistent otitis media with effusion.

Medical Policy Statement:

Laser-assisted tympanostomy with insertion of pressure-equalizing tube is considered medically necessary and is covered for patients with chronic otitis or persistent otitis media with effusion.

Limits:

Laser-assisted myringotomy as a treatment for acute otitis media with active infection is not considered medically necessary and is not covered.
Background:

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 one or two 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 tympanotomies with PET insertion. Laser-assisted procedures can be performed in the pediatrician’s office using only local anesthesia. For example, the 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 flash scanner 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 FDA that is intended to be used as a technique for performing myringotomies and tympanotomies. In addition, devices used for laser-assisted palatoplasty may be adapted for this use.

As a surgical tool, the laser-assisted approach is an alternative to conventional myringotomy and tympanostomy. 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.

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.

Surgical aeration of the middle ear is indicated to acutely relieve pressure and to restore hearing in patients with acute otitis media. 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 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.

References:


Application to Products

This policy applies to ARBenefits. Consult ARBenefits Summary Plan Description (SPD) for additional information.

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