Clinical Policy Bulletin:
Carbon Dioxide Laser for Actinic Lesions and Other Selected Indications

Number: 0427

Policy

Aetna considers carbon dioxide laser treatments medically necessary for the following indications:

- Condyloma
- Refractory plantar warts (verruca plantaris)
- Removal of actinic keratoses for members who meet applicable criteria set forth in CPB 0567 - Actinic Keratoses Treatment.
- Removal of superficial basal cell carcinomas of the skin

Aetna considers carbon dioxide laser treatments of other actinic lesions as cosmetic. Note: Most Aetna benefit plans exclude coverage of cosmetic procedures.

Aetna considers carbon dioxide laser surgery experimental and investigational for the following indications (not an all-inclusive list) because its effectiveness for these indications has not been established:

- Hailey-Hailey disease
- Hidradenitis suppurativa scarring
- Onychomycosis

Background

The CO₂ laser is effective in removing actinic keratoses and superficial basal cell carcinomas of the skin. Use of the CO₂ laser to treat non-precancerous actinic lesions, such as skin wrinkling, is considered cosmetic, and thus subject to the standard contractual exclusion of coverage for cosmetic procedures.

A recent review on laser and photodynamic therapy for the treatment of non-melanoma skin cancer (Marmur et al, 2004) stated that at this time, because the reported recurrence rates are significantly higher than those achieved with standard therapies, laser and photodynamic therapy should be reserved for only those patients who can not undergo
surgical therapy for basal cell carcinoma and squamous cell carcinoma.

Iyer et al (2004) evaluated the effectiveness of full face laser resurfacing (UPCO₂ and/or Er:Yag laser) in reducing the number of facial actinic keratoses by comparing pre-operative and post-operative numbers of lesions present and to observe the incidence of non-melanoma skin cancer after full face laser resurfacing (n = 24). These investigators concluded that full face laser resurfacing provides long-term effective prophylaxis against actinic keratoses and may reduce the incidence of actinic keratoses-related squamous cell carcinoma. The findings of this study need to be validated by well-designed trials with long-term follow-up.

Krakowski et al (2014) noted that hidradenitis suppurativa (HS) is a chronic, relapsing, inflammatory skin condition that can have a significant psychosocial impact, both with the active disease and with residual scarring. Although a wide variety of treatment options exist for HS, to the authors’ knowledge there are no reported modalities aimed specifically at treating HS scarring. These researchers described the case of an adolescent female who received medical management of intra-mammary HS followed by successful treatment with fractionated 10,600-nm CO₂ laser for her residual cribriform scarring. The authors believed there is great potential for the use of fractionated CO₂ laser to improve short- and long-term psychosocial outcomes of HS, promote physical scar remodeling, and possibly alter the disease process itself.

In a systematic review, Ledon et al (2014) stated that onychomycosis is a prevalent and extremely difficult condition to treat. In older and diabetic populations, severe onychomycosis may possibly serve as a nidus for infection, and other more serious complications may ensue. Many treatment modalities for the treatment of onychomycosis have been studied, including topical lacquers and ointments, oral anti-fungals, surgical and chemical nail avulsion, and lasers. Due to their minimally invasive nature and potential to restore clear nail growth with relatively few sessions, lasers have become a popular option in the treatment of onychomycosis for both physicians and patients. Laser or light systems that have been investigated for this indication include the CO₂, neodymium-doped yttrium aluminum garnet, 870/930-nm combination, and femtosecond infrared 800-nm lasers, in addition to photodynamic and ultraviolet light therapy.

Furthermore, an UpToDate review on “Onychomycosis” (Goldstein, 2014) states that “Although neodymium-doped:yttrium aluminum garnet (Nd:YAG) and diode lasers have emerged as treatment options for onychomycosis, data on the efficacy of these interventions are limited and the mechanisms of action and optimal regimens for these treatments remain unclear. Until more robust data supporting the efficacy of laser therapy for onychomycosis is available, we cannot recommend the routine use of this modality”.

In a Cochrane review, Kaushik et al (2014) evaluated the safety and effectiveness of surgical interventions in women with high-grade vulval intraepithelial neoplasia (VIN). These investigators searched the Cochrane Gynaecological Cancer Group Trials Register and the Cochrane Central Register of Controlled Trials (CENTRAL) Issue 11, 2013 and MEDLINE and EMBASE up to December 2013. They also searched registers of clinical trials, abstracts of scientific meetings and reference lists of included studies, and contacted experts in the field. Randomized controlled trials (RCTs) that compared surgical interventions in adult women diagnosed with high-grade VIN were selected for analysis. Two review authors independently abstracted data and assessed risk of bias. They identified 1 RCT (n = 30) that met the inclusion criteria; this trial reported data on CO₂ laser surgery versus cavitational ultrasonic surgical aspiration (CUSA). There were no statistically significant differences in the risks of disease recurrence after 1 year of follow-up, pain, scarring, dysuria or burning, adhesions, infection, abnormal discharge or
eschar between women who underwent CO2 laser surgery and those who received CUSA. The trial lacked statistical power due to the small number of women in each group and the low number of observed events, but was at low risk of bias. The authors concluded that the included trial lacked statistical power due to the small number of women in each group and the low number of observed events. The absence of reliable evidence regarding the safety and effectiveness of the 2 surgical techniques (CO2 laser surgery and CUSA) for the management of VIN therefore precluded any definitive guidance or recommendations for clinical practice.

Carbon Dioxide Laser for Hailey-Hailey Disease:

Falto-Aizpurua et al (2014) stated that benign familial chronic pemphigus, or Hailey-Hailey disease (HHD), is a recurrent bullous dermatitis that tends to have a chronic course with frequent relapses. Long-term treatment options include surgery with skin grafting or dermabrasion. Both are highly invasive and carry significant risks and complications. More recently, "laser-abrasion" has been described as a less invasive option with a better side-effect profile. These investigators systematically reviewed the safety and effectiveness of carbon dioxide laser therapy as a long-term treatment option for HHD, and provided a review of other lasers that have been reported with this goal. A total of 23 patients who had been treated with a carbon dioxide laser were identified. After treatment, 10 patients (43 %) had had no recurrence, 10 (43 %) had greater than 50 % improvement, 2 (8 %) had less than 50 % improvement and 1 (4 %) patient had no improvement at all (follow-up period ranged from 4 to 144 months). Laser parameter variability was wide and adverse effects were minimal, including dyspigmentation and scarring. The authors concluded that reviewed evidence indicated this therapy offers a safe, effective treatment alternative for HHD with minimal risk of side-effects. Moreover, they stated that larger, well-designed studies are needed to determine the optimal treatment parameters.

Also, an eMedicine review on "Familial Benign Pemphigus (Hailey-Hailey Disease) Treatment & Management" (Helm, 2014) noted that "A single case report of remission induced by multiple treatments of long-pulsed alexandrite laser brings additional promise of potential long-term control, though many more studies are needed". The review did not mention carbon dioxide laser as a therapeutic option.

Furthermore, an UpToDate review on “Hailey-Hailey disease (benign familial pemphigus)” (Morrell, 2015) states that “Surgical and destructive methods have been used in patients with recalcitrant HHD and include carbon dioxide laser or 595 nm pulsed dye laser ablation …. Long healing time, pain, scarring, and uncertain long-term benefit are drawbacks of surgical or destructive therapies for HHD".

CPT Codes / HCPCS Codes / ICD-9 Codes

CPT codes covered if selection criteria are met:

17000 - 17004  Destruction (e.g., laser surgery electrosurgery, cryosurgery, chemosurgery, surgical curettement) premalignant lesions (e.g., actinic keratoses)

17260 - 17286  Destruction, malignant lesion (e.g., laser surgery, electrosurgery, cryosurgery, chemosurgery, surgical curettement)
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CPT codes covered if selection criteria are met:

17110 Destruction (eg, laser surgery, electrosurgery, cryosurgery, chemo surgery, surgical curettement), of benign lesions other than skin tags or cutaneous vascular proliferative lesions; up to 14 lesions [carbon dioxide laser surgery]

17111 15 or more lesions [carbon dioxide laser surgery]

ICD-9 codes covered if selection criteria are met:

173.01, 173.11, Other and unspecified malignant neoplasm of skin [basal cell carcinoma]
173.21, 173.31
173.41, 173.51,
173.61, 173.71
173.81, 173.91
702.0 Actinic keratoses

ICD-9 codes not covered if selection criteria are met:

110.1 Dermatophytosis (onychomycosis)
692.73 Actinic reticuloid and actinic granuloma
692.75 Disseminated superficial actinic porokeratosis (DSAP)
705.83 Hidradenitis (suppurativa)

The above policy is based on the following references:

12. Fulton JE. Dermabrasion, chemabrasion, and laserabrasion. Historical perspectives,


Carbon Dioxide Laser for Hailey-Hailey Disease:


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