Dermabrasion and chemical peel

Clinical Policy ID: CCP.1323

Recent review date: 8/2024

Next review date: 12/2025

Policy contains: Acne vulgaris, actinic keratosis; chemical peels; dermabrasion; skin cancer.

Keystone First VIP Choice has developed clinical policies to assist with making coverage determinations. Keystone First VIP Choice's clinical policies are based on guidelines from established industry sources, such as the Centers for Medicare & Medicaid Services (CMS), state regulatory agencies, the American Medical Association (AMA), medical specialty professional societies, and peer-reviewed professional literature. These clinical policies along with other sources, such as plan benefits and state and federal laws and regulatory requirements, including any state- or plan-specific definition of "medically necessary," and the specific facts of the particular situation are considered by Keystone First VIP Choice, on a case by case basis, when making coverage determinations. In the event of conflict between this clinical policy and plan benefits and/or state or federal laws and/or regulatory requirements, the plan benefits and/or state and federal laws and/or regulatory requirements shall control. Keystone First VIP Choice's clinical policies are for informational purposes only and not intended as medical advice or to direct treatment. Physicians and other health care providers are solely responsible for the treatment decisions for their patients. Keystone First VIP Choice's clinical policies are reflective of evidence-based medicine at the time of review. As medical science evolves, Keystone First VIP Choice will update its clinical policies as necessary. Keystone First VIP Choice's clinical policies are not guarantees of payment.

Coverage policy

Dermabrasion (laser) is clinically proven and, therefore, may be medically necessary to remove pre-cancerous actinic keratosis, when conventional methods (e.g., 5-fluorouracil, imiquimod, or cryotherapy) are not effective due to the large number of lesions, being contraindicated, or refusal by the patient (National Comprehensive Cancer Network, 2023b).

Chemical peels are clinically proven and, therefore, may be medically necessary to remove pre-cancerous actinic keratosis and other pre-malignant skin conditions, when conventional methods (e.g., 5-fluorouracil, imiquimod, or cryotherapy) are not effective due to the large number of lesions, being contraindicated, or refusal by the patient (Eisen, 2021; National Comprehensive Cancer Network, 2024b).

For medical necessity determinations of medications, refer to the applicable state approved pharmacy policy.

Limitations

Other uses of dermabrasion and chemical peels, including those performed for cosmetic purposes, are considered investigational/not clinically proven and, therefore, not medically necessary.

Contraindications to dermabrasion and chemical peels include: active bacterial, viral, or fungal infections; active stages of acne; tendency to keloid formation; facial dermatitis; current use of photosensitizing medications; previous radiation treatments; and unrealistic expectations (American Society of Plastic Surgeons, 2023).

Alternative covered services

- Topical therapies.

- Cryotherapy.
- Photodynamic therapy.
- Combination of above therapies (Eisen, 2021).

Background

Dermabrasion employs a hand-held, rapidly rotating wire brush or diamond fraise (steel wheel) that planes or sands the skin on the face, removing the epidermis and superficial dermis. Traditional dermabrasion has been used less often in recent years, due to the availability of less invasive procedures (American Society of Plastic Surgeons, 2023).

Microdermabrasion is a less invasive, non-surgical procedure that exfoliates or removes the top layer of skin (stratum corneum), after aluminum oxide crystals or other abrasive substances are blown onto the face using a hand-held device. Another less invasive method employs laser to resurface the skin (American Society of Plastic Surgeons, 2023).

Chemical peels involve applying a solution to the skin that causes exfoliation and eventual peeling, leaving the skin smoother and less wrinkled than before the procedure. Peels are divided into three levels (American Society for Dermatologic Surgery, 2023):

1. Superficial peels, which gently exfoliates the outer layer of skin, and take one to seven days to heal.
2. Medium peels, which involve application of glycolic or trichloroacetic acid to remove damaged skin cells in the outer and middle layers of skin, and take seven to 14 days to heal.
3. Deep peels, which involve application of trichloroacetic acid or phenol to deeply penetrate the middle layer of skin, and remove damaged skin cells, and take 14 to 21 days to heal.

Many procedures in these categories are performed for cosmetic purposes. Others are performed to address functional impairments of the skin. Common uses of dermabrasion may include the treatment of acne and injury-induced scarring, sun damaged and wrinkled skin, rhinophyma, and precancerous skin lesions. Chemical peels may be used in combination or alone depending on individual need (American Society for Dermatologic Surgery, 2023; American Society of Plastic Surgeons, 2023).

Findings

Dermabrasion and chemical peels are long-standing skin resurfacing options. The science behind chemical peeling over the last 30 years has expanded the potential role of different skin resurfacing procedures and treatment indications (Lee, 2018). Currently, the relative treatment efficacy of dermabrasion and chemical peels is hampered by the lack of controlled trials and of professional guidelines that specifically address these treatments and their clinical purpose.

The American Academy of Dermatology produced a recent guideline for managing acne vulgaris. The Academy's work group of 17 experts reviewed 242 articles and noted that while studies of chemical peels exist, large multicenter double-blinded control trials are lacking (Zaenglein, 2016). While early literature reviews of dermabrasion and chemical peel skin resurfacing for acne vulgaris general showed favorable efficacy with low risk of complications, the evidence comprised uncontrolled studies enrolling small numbers of patients (Dréno, 2011; Kim 2011).

Actinic keratosis is a skin disease caused by long-term sun exposure, and its lesions have the potential to develop into keratinocyte carcinoma. Prospective longitudinal studies have identified pre-existing actinic keratosis and large actinic keratoses that exceed 1 cm^2 in diameter as features associated with the development

of squamous cell carcinoma (Balcere, 2022). Treatments are sought for relief of associated symptoms or to limit the morbidity and mortality of squamous cell carcinoma often associated with alteration of the surrounding skin area where subclinical lesions might also be present. There is some controversy regarding the best treatment standard for actinic keratosis, which is reflected in current guidelines.

A European expert guideline on actinic keratosis did not address dermabrasion or chemical peels (Werner, 2015). A French guideline included surgical treatment as one acceptable option for actinic keratosis (Dréno, 2014). A Canadian guideline concluded actinic keratosis should be treated using surgical, topical, or photodynamic therapies; and combined therapies can be used when initial treatment is not successful (Poulin, 2015).

A Cochrane review of treatments concluded carbon dioxide laser and Er:YAG laser resurfacing, 5-fluorouracil, and trichloroacetic acid peel were similarly efficacious for reducing the number of actinic keratoses (three randomized controlled trials, n = 87). The ability of carbon dioxide laser resurfacing to prevent short-term (within 12 months) recurrence of actinic keratoses is unclear. No studies of conventional dermabrasion met inclusion criteria (Gupta, 2012).

In 2022, we deleted several older references. We added three guidelines from the American Academy of Dermatology Association and one from the National Comprehensive Cancer Network that reflect current standards of care. We added two systematic reviews to the policy that confirm the efficacy of chemical peels for treating actinic keratoses. Based on the new information, we limited the coverage to treatment of actinic keratosis only.

The American Academy of Dermatology Association strongly recommends topical agents and cryosurgery for treating actinic keratoses, and conditionally recommends photodynamic therapy over trichloroacetic acid peel and certain combination therapies. They issued no recommendation statement for dermabrasion skin resurfacing options (Eisen, 2021). The National Comprehensive Cancer Network (2022) states that chemical peels (trichloroacetic acid) and ablative skin resurfacing (e.g., dermabrasion, laser) may be considered for treatment of actinic keratosis for their ability to reduce the numbers of lesions, although high-quality data supporting the efficacy and safety of these treatments are lacking.

For basal cell carcinoma and cutaneous squamous cell carcinoma, surgical excision is the recommended primary treatment. Topical therapies may be considered for patients with low-risk disease when surgery is impractical or declined by the patient, although the cure rates for these options may be lower. Chemical peel and conventional dermabrasion are not mentioned as treatment options once carcinoma is diagnosed (Kim, 2018a, 2018b; National Comprehensive Cancer Network, 2024a).

A systematic review found four of the five included studies confirmed the efficacy of chemical peels in reducing lesion count with minimal adverse effects. The ability of chemical peels to prevent additional lesion formation and development of keratinocyte carcinomas is less clear (Jiang, 2021).

For treatment of actinic cheilitis, a precancerous skin change on the lips, a systematic review of 18 mostly low-quality case series (n = 411) found carbon dioxide laser ablation and vermilionectomy were associated with the most favorable outcomes with fewest recurrences, while chemical peel and photodynamic therapy were associated with higher recurrence. For all treatments, adverse effects generally resolved quickly with favorable cosmesis. High-quality comparative studies are needed to determine the relative efficacy of treatment options and patient preferences (Trager, 2021).

In 2023, we updated the National Comprehensive Cancer Network guideline (2023a, 2023b) and added two new analyses with no policy changes warranted. A network meta-analysis examined 179 randomized controlled trials with approximately 35,000 observations across 49 treatment classes for acne vulgaris. Low-quality evidence found chemical peels (e.g., salicylic or mandelic acid) to be one of the most effective treatment options for mild-

to-moderate acne (mean difference 39.70%, 95% credible interval 12.54% to 66.78%, n = 128). However, the uncertainty in the findings was high, and further research was warranted (Mavranezouli, 2022).

A systematic review identified three randomized controlled trials of trichloroacetic acid treatment for actinic keratosis. The concentrations ranged between 30% and 50% and were applied as a single treatment to individual lesions. The mean percent clearance post-treatment was 65.6% at 1 to 3 months, 68.0% at 3 to 6 months, and 27% at 12 months. Only the 3 to 6 months timepoint was statistically significant compared to placebo. While the results suggest trichloroacetic acid elicits a delayed, short-lived treatment response, the recurrence rate after 12 months was very low (5.4%) — among the lowest of all treatment options. There was no correlation between concentration of trichloroacetic acid and the degree of clinical response (Worley, 2023).

References

On July 9, 2023, we searched PubMed and the databases of the Cochrane Library, the U.K. National Health Services Centre for Reviews and Dissemination, the Agency for Healthcare Research and Quality, and the Centers for Medicare & Medicaid Services. Search terms were “dermabrasion (MeSH),” “chemexfoliation (MeSH)”, “neoplasm (MeSH),” “chemical peel,” “acne vulgaris,” “actinic keratosis,” “lesions,” and “carcinoma.” We included the best available evidence according to established evidence hierarchies (typically systematic reviews, meta-analyses, and full economic analyses, where available) and professional guidelines based on such evidence and clinical expertise.

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Policy updates

7/2017: initial review date and clinical policy effective date: 8/2017

8/2018: Policy references updated.

8/2019: Policy references updated. Policy ID changed from 16.02.09 to CCP.1323.

8/2020: Policy references updated. Contraindications added to limitations section.

8/2021: Policy references updated.

8/2022: Policy references updated. Coverage modified.

8/2023: Policy references updated.

8/2024: Policy references updated.