

Carbon Dioxide Laser Treatment Using Methylene Blue–Assisted Sinus Tract Identification in Hidradenitis Suppurativa

Keratinocytes and remnant of keratinocytes in nodules, abscesses, and sinus tracts are radically removed in surgical treatment of hidradenitis suppurativa.¹ We are now using methylene blue in carbon dioxide laser surgery for patients with moderate to severe hidradenitis lesions (Hurley stage II-III). Methylene blue stains active inflammatory nodules and sinus tracts. We use a modified methylene blue staining technique by the addition of 2% gel of methylcellulose polymers to the dye. The resulting blue gel is easier to handle than a liquid, and is injected or probed into sinus tracts with either a syringe or a cotton swab, resulting in limited dye spillage and a clean operating field. Major tracts are normally easy to probe without staining. However, tracts with hidden orifices and minor branches of epithelialized tracts with diameters too small diameter to probe can be revealed using methylene blue. Figure 1 shows instillation procedure in

a sinus tract and uptake of methylene blue gel in lesional skin tissue.

Discussion

Several surgical treatment methods for hidradenitis exist, hereunder, deroofting, excision, carbon dioxide laser vaporization, and electrosurgery. Leaving epithelialized tissue untreated may be one cause of recurrent disease. Communicating tracts must be found and explored intraoperatively for curative excision or deroofting. The common method of exploring sinus tracts is using a blunt probe. Electrosurgery and carbon dioxide laser deroofting is often combined with probing.^{2,3} Another method to identify sinus tracts is to use dye intraoperatively.

Methylene blue is a vital stain taken up by actively absorbing tissues, among them stratified epithelium. It is commonly used in head, neck, and

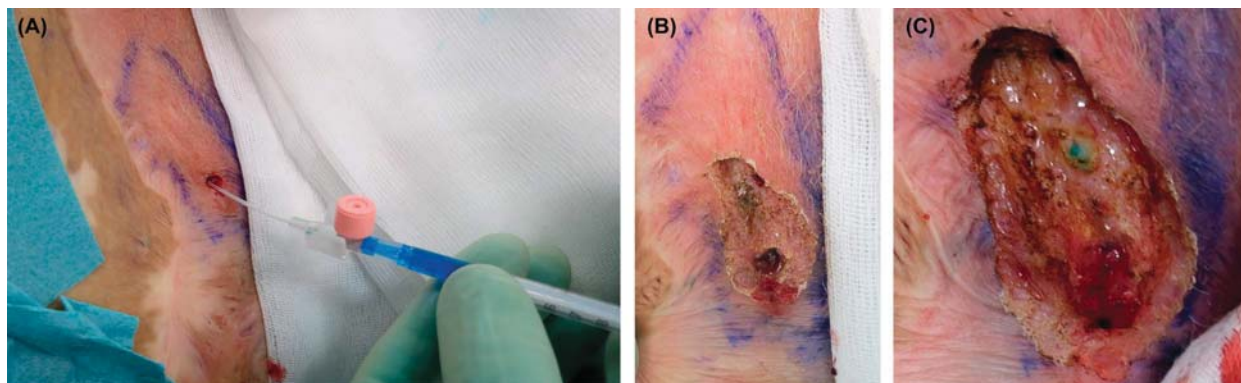


Figure 1. (A) A clear blue gel made from methylthionine hydrochloride (methylene blue) 10 mg/mL and methylcellulose gel 2% (Methocel; OmniVision, Germany) mixed in a 1:20 equation can be probed or instilled easily into sinus tracts because of its firm viscous consistency. Lesion located in the inguinal crease. The white discoloration and scarring is a result of previous surgery. (B) After first pass carbon dioxide laser treatment, dye is taken up in an active nodule, whereas the surrounding tissue is not stained. (C) After second pass treatment, apically from the first nodule, a small dyed nodule appeared, connected by a small tract that could not be found by probing.

parathyroid surgery, for sentinel lymph node detection, testing of the integrity of gastrointestinal anastomosis as well as in fistuli and sinus detection in bladder, bowel, anal, and pilonidal sinus surgery. When comparing primary open, primary midline closed, and marsupialization surgery of pilonidal sinus disease, methylene blue was found to be the most potent factor, leading to the largest reduction in recurrence rate.⁴ Use of methylene blue is recently described in wide excision surgery of hidradenitis, but to our knowledge, there are no reports of methylene blue use in hidradenitis laser surgery.⁵

AQ: 4 Since 1997, we have used scanner-assisted carbon dioxide laser with recurrent symptomatic HS lesions with the technique of carbon dioxide laser vaporization of nodules and sinus tracts. We consider methylene blue to be a tissue-saving adjuvant, as the outlining of affected structures warrants less radical vaporization of tissue in affected areas. For the patient, a smaller postoperative wound results in faster healing, less scarring, and reduced risk of skin contractures.

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