

Photosensitivity and Ocular Photosensitivity: Observe precautions to avoid exposure of skin and eyes to direct sunlight or bright indoor light for at least 30 days. Instruct patients when outdoors to wear dark sunglasses which have an average light transmittance of <4% for at least 30 days and until ocular sensitivity resolves.

Use Before or After Radiotherapy: Allow 2-4 weeks between PDT and subsequent radiotherapy.

Chest Pain: Substernal chest pain can occur.

Airway Obstruction and Respiratory Distress: Administer with caution to patients with tumors in locations where treatment-induced inflammation can obstruct the main airway. Monitor patients closely between the laser light therapy and the mandatory debridement bronchoscopy for any evidence of respiratory distress.

Esophageal Strictures: Esophageal strictures can occur.

Hepatic and Renal Impairment: Patients with hepatic or renal impairment may need longer precautionary measures for photosensitivity.

Thromboembolism: Thromboembolic events can occur.

Embryo-Fetal Toxicity: May cause embryo-fetal toxicity. Advise females of reproductive potential of the potential risk to a fetus and to use effective contraception.

MOST COMMON ADVERSE REACTIONS reported during clinical trials (>10% of patients) are:

Esophageal Cancer: Anemia, pleural effusion, pyrexia, constipation, nausea, chest pain, pain, abdominal pain, dyspnea, photosensitivity reaction, pneumonia, vomiting, insomnia, back pain, pharyngitis.

Obstructing Endobronchial Cancer: Dyspnea, photosensitivity reaction, hemoptysis, pyrexia, cough, pneumonia.

Superficial Endobronchial Tumors: Exudate, photosensitivity reaction, bronchial obstruction, edema, bronchostenosis.

High-Grade Dysplasia in Barrett's Esophagus: Photosensitivity reaction, esophageal stenosis, vomiting, chest pain, nausea, pyrexia, constipation, dysphagia, abdominal pain, pleural effusion, dehydration.

Other photosensitizing agents may increase the risk of photosensitivity reaction. Because of the potential for serious adverse reactions in the breastfed infant, advise patients that breastfeeding is not recommended during treatment with PHOTOFRIN and for 5 months after the last dose.

Please see accompanying full Prescribing Information for PHOTOFRIN® (porfimer sodium) for Injection at: www.photofrin.com

FOR MORE INFORMATION about PHOTOFRIN®, or if there are any questions regarding the information provided, visit www.photofrin.com or please contact the Medical Information Department at **1-866-248-2039**.

You are encouraged to report negative side effects of prescription drugs to the FDA.

Visit www.fda.gov/medwatch, or call **1-800-FDA-1088**.

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Advanced Esophageal Adenocarcinoma With Complete Obstruction

Courtesy of Harmik J. Soukiasian, MD, FACS

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Patient History

This 70-year-old female initially presented with dysphagia (first to solids then to liquids) over a 1-month period, in addition to fatigue and weight loss (10 lbs) in the same period. She also noted occasional substernal chest discomfort. An initial diagnostic esophagogastroduodenoscopy (EGD) revealed a mass in the gastric cardia with evidence of intrinsic stenosis at 38 cm from the incisors. Biopsies were performed and pathology was consistent with adenocarcinoma, HER2-negative. The patient's tumor was staged as a T3N0M0 distal esophageal adenocarcinoma and she was referred for neoadjuvant chemoradiation. After completion of induction therapy, a repeat PET/CT was performed, which revealed new pulmonary nodules. Biopsy of these nodules confirmed metastatic disease, and the patient was no longer deemed a surgical candidate. For her dysphagia, the patient underwent stent placement; however, she developed epigastric pain after migration of the stent, which had to be removed. The patient continued to have decreased food intake and weight loss, but was able to tolerate some soft solids. She developed pain and regurgitation, however, when food would become stuck at the distal esophagus. She was referred for palliative treatment of her obstructive tumor.

Examination

Physical examination revealed stable vital signs and a body mass index of 21 kg/m². The patient appeared very thin and frail, but was in no acute distress. Upon further examination, she had no palpable adenopathy and a soft abdomen, yet her cardiopulmonary exam was unremarkable.

Diagnostic Evaluation

Following chemoradiation treatments and prior to photodynamic therapy (PO1) with PHOTOFRIN® (porfimer sodium) for Injection, an EGD showed an almost complete tumor obstruction at the gastroesophageal junction (GEJ), which prevented the scope from passing beyond the tumor (Figure 1). The most recent CT following treatment revealed the following:

- Moderate mural thickening of the distal esophagus (redemonstrated, unchanged)
- Persistent nodular thickening of the gastric cardia, though decreased with moderate hypermetabolism
- Bilateral breast implants are in place
- Well-expanded lungs
- Scattered bilateral subcentimeter pulmonary nodules, some of which were new when compared to prior examination



Figure 1 – Endoscopy showing near-complete obstruction prior to PDT with PHOTOFRIN® (porfimer sodium) for Injection.

See important prescribing and safety information for PHOTOFRIN® (porfimer sodium) for Injection on pages 3 and 4.

Course of Treatment

The patient was given neoadjuvant chemoradiation with plans for surgical resection; however, she developed new lung nodules. These nodules were surgically biopsied and were consistent with metastatic disease. As previously stated, stent placement had already been performed, with subsequent migration and pain. As a result, photodynamic therapy (PDT) with PHOTOFRIN® (porfimer sodium) for Injection was initiated in an effort to improve the patient's severe dysphagia after failing other treatments.

The standard 2 mg/kg of PHOTOFRIN® was administered intravenously. Forty-eight hours later, a 5-cm diffusing fiber was inserted into the very small lumen at the distal esophagus, and at the energy setting of 300 Joules/cm for 6 minutes and 15 seconds for a total light dose of 2000 mW. The catheter was withdrawn to 5.5 cm above obstruction and 300 Joules/cm were administered for another 6 minutes and 15 seconds.

Two days later, the patient returned for another PDT procedure. Esophagogastroduodenoscopy (EGD) indicated there was some necrotic change, however significant obstruction remained at the distal esophagus (Figure 2).



Figure 2 – Endoscopy at second PDT treatment with enough lumen to pass catheter.

Receiving the same protocol that was previously administered, the patient continued to have improvement in her symptoms, with no pain on oral intake. Eight days later, the patient received a third light application. EGD revealed that the size of the esophageal lumen was significantly increased. The scope was passed into the stomach with mild resistance, and retroflexion revealed infiltrative disease at the gastroesophageal junction (GEJ) and along the gastric cardia. The identical treatment protocol was administered at the bulk of the tumor (Figure 3).

A fourth and final light application using the same protocol was administered 6 days later. The scope passed easily through a widely patent GEJ into the stomach with minimal resistance.

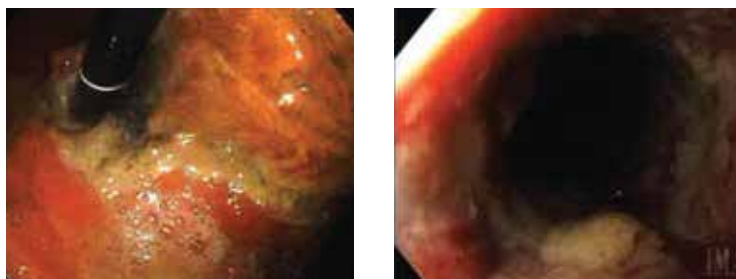


Figure 3 – Endoscopy after third PDT procedure, now able to pass scope into stomach, showing significant tumor at the GEJ (left). After completion of treatment, now with widely patent esophageal lumen right).

Clinical Outcomes

The patient reported an improvement in swallowing immediately after the first photodynamic therapy (PDT) with PHOTOFRIN® (porfimer sodium) for Injection. Over the course of her next 3 procedures, the patient reported that her dysphagia and odynophagia continued to improve significantly.

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Since her first PDT with PHOTOFRIN® procedure, there was no recurrence of postprandial pain or regurgitation of food. The patient also reported that she was now able to swallow pills, having not been able to swallow pills of any size previously. She was referred to her medical oncologist for further systemic treatment of her metastatic esophageal cancer.

Discussion

This case study showcases a clinical scenario in which PDT with PHOTOFRIN® was integral to providing palliative care for a patient with advanced disease. Having already undergone definitive chemoradiation with minimal shrinkage of tumor and no major changes in her dysphagia symptoms, the patient continued to lose weight and likely would have required another procedure to provide enteral feeding access. She felt that she saw an improvement in her symptoms with just one PDT with PHOTOFRIN® session. PDT with PHOTOFRIN® provided this patient with the ability to exercise control over her nutrition intake and alleviated the stress related to eating.

The information contained in this case study has been supplied by the medical professional whose name appears here. The advice, opinion, statements, materials and other information expressed and contained in this case study are from the authors and reflect their personal experience with the specific patient. Results may vary. Pinnacle Biologics, Inc. makes no claim that similar treatment will result in a similar outcome.

PHOTOFRIN® (porfimer sodium) for Injection Indications

Palliation of patients with completely obstructing esophageal cancer, or of patients with partially obstructing esophageal cancer who, in the opinion of their physician, cannot be satisfactorily treated with Nd:YAG laser therapy.

Treatment of microinvasive endobronchial non-small cell lung cancer (NSCLC) in patients for whom surgery and radiotherapy are not indicated.

Reduction of obstruction and palliation of symptoms in patients with completely or partially obstructing endobronchial NSCLC.

Ablation of high-grade dysplasia (HGD) in Barrett's esophagus (BE) patients who do not undergo esophagectomy.

Important Safety Information About PHOTOFRIN® (porfimer sodium) for Injection

PHOTOFRIN® should not be used in patients with porphyria, existing tracheoesophageal or bronchoesophageal fistula, tumors eroding into a major blood vessel, emergency treatment of patients with severe acute respiratory distress caused by an obstructing endobronchial lesion because 40 to 50 hours are required between injection of PHOTOFRIN® and laser light treatment, and esophageal or gastric varices or esophageal ulcers >1 cm in diameter.

IMPORTANT WARNINGS AND PRECAUTIONS USING PHOTOFRIN® INCLUDE:

Gastroesophageal Fistula and Perforation: Do not initiate PHOTOFRIN with photodynamic therapy (PDT) in patients with esophageal tumors eroding into the trachea or bronchial tree or bronchial wall.

Pulmonary and Gastroesophageal Hemorrhage: Assess patients for tumors eroding into a pulmonary blood vessel and esophageal varices. Do not administer light directly to an area with esophageal varices.

High-Grade Dysplasia (HGD) in Barrett's Esophagus (BE): After treatment of HGD in BE, conduct endoscopic biopsy surveillance every 3 months, until 4 consecutive negative evaluations for HGD have been recorded.