

**ENDOSCOPIC Nd YAG LASER : PALLIATIVE THERAPY FOR ESOPHAGO-CARDIAL
CANCER. Concerning 30 patients treated between July 1984 and January
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Résumé : 26 hommes et 4 femmes, âgés de 34 à 91 ans (moyenne : 69) ont été traités : 26 cancers de l'oesophage (16 malpighiens ; 8 cylindriques ; 1 indéterminé ; 1 carcinosarcome) ; 4 du cardia (3 adénocarcinomes ; 1 linité plastique). Les cancers de l'oesophage siègeaient aux tiers supérieur : 4, moyen : 7, inférieur : 9, supérieur et moyen : 1, moyen et inférieur : 4, sur tout l'oesophage : 1. La hauteur des lésions allait de 1,5 à 16 cm (moyenne : 7). 11 malades avaient une sténose infranchissable. 3 malades avaient une récurrence post-opératoire. 3 avaient une tumeur inextirpable à l'intervention. Les 24 autres présentaient des contre-indications opératoires. La radiothérapie a été refusée pour contre-indications chez 17 malades. 13 ont eu une radiothérapie : 10 avant, 3 après le laser. Les indications du laser étaient : une hématomèse (1 cas), la destruction d'un petit cancer de 1,5 cm (1 cas), la dysphagie (28 cas). Les résultats immédiats ont été : une hémorragie arrêtée ; un petit cancer détruit ; dysphagie améliorée : 22/28 ; tumeur rendue franchissable : 7/11. 2 complications sont survenues : un pneumopéritoine régressif ; un pneumopéricarde fatal. A distance, les résultats ont été : 19 malades décédés 8 à 460 jours (moyenne : 105) après le début du traitement laser ; 11 vivants 14 à 637 jours (moyenne : 239) après le début du traitement, avec une très nette amélioration symptomatique.

Abstract : 26 men and 4 women, aged between 34 and 91 years (mean : 69) were treated : 26 cancers of the esophagus (16 squamous cell carcinoma ; 8 adenocarcinoma ; 1 undifferentiated carcinoma ; 1 carcinosarcoma) ; 4 of the gastric cardia (3 adenocarcinoma ; 1 linitis plastica). The cancers of the esophagus occupied the upper third in 4 cases, middle : 7, lower : 9, upper and middle : 1, middle and lower : 4, the whole esophagus : 1. Lesion length ranged from 1.5 to 16 cm (mean : 7). 11 patients had impassable stenosis. 3 patients had post-operative relapses. 3 had tumors which on operation proved inextricable. The other 24 displayed operative contra-indications. In 17 patients radiotherapy was ruled out because of contra-indications. 13 underwent radiotherapy : 10 before and 3 after laser treatment. Symptoms justifying laser therapy were : hematemesis (1 case) ; destruction of one small 1.5 cm cancer (1 case) ; dysphagia (28 cases). The immediate results were : stoppage of a hemorrhage ; a small cancer was destroyed ; dysphagia was improved in 22 cases out of 28 ; the tumor was rendered passable in 7 cases out of 11. 2 complications occurred a regressive pneumoperitoneum and a fatal case of pneumopericardium. The long-term results were as follows : 19 patients died between 8 and 460 days (mean : 105) after laser treatment began ; 11 were still alive between 14 and 637 days (mean : 239) after treatment began, with a clear improvement in their symptoms.

INTRODUCTION

Most patients with esophago-gastric cancer are not curable by the time of presentation with symptoms. Only 10 % of patients can benefit for curative surgical intervention (1,2). Moreover, surgical treatment is associated with a high mortality and morbidity. Even if it gives similar results, radiotherapy is, generally, carried out on patients with locoregional spreading cancers or on patients not suitable for surgery (3). Radiotherapy should be advised only on patients who are in a good general condition, without tracheal or bronchial

invasion ; this treatment cannot be repeated in case of relapse. Furthermore, esophageal obstruction by the tumor causes dysphagia which makes life impossible for the patients not suitable for surgery or radiotherapy, or suffering from relapses after surgery and/or radiotherapy. The purpose of this study is to analyse the results obtained by Nd YAG laser therapy as palliative treatment to create a free passage through the esophagus or the cardia.

PATIENTS AND METHODS

26 men and 4 women, aged between 34 and 91 (mean : 69) were treated with Nd YAG laser : 26 for cancer of the esophagus, 4 for gastric cardia cancer. These patients were passed on to us by other doctors after the failure of surgery and/or radiotherapy and/or chemotherapy, or because of contra-indications in surgery and/or radiotherapy. None of these patients came from our service.

I - CHARACTERISTICS OF THE CANCERS

The esophageal cancers were in the upper third : 4 ; middle : 7 ; lower : 9 ; upper and lower : 1 ; middle and lower : 4 ; upper, middle and lower : 1. Budding aspect was encountered in 20 cases, infiltrating in 6. The gastric cardia cancers were all infiltrating. In 18 patients, the cancer occupied the whole circumference of the esophagus (15 cases) or the gastric cardia (3 cases). In 11 patients, the tight stenosis was impassable with a pediatric fibroscope. Lesion length ranged from 1.5 to 16 cm (mean : 7). The esophageal cancers were squamous cell carcinoma in 16 cases, adenocarcinoma in 8 cases, undifferentiated in 1 case and 1 was a carcinosarcoma. In the gastric cardia there were 3 cases of adenocarcinoma and 1 of linitis plastica.

II - TREATMENTS CARRIED OUT BEFORE OR AFTER LASER THERAPY : SURGERY, RADIOTHERAPY AND/OR CHEMOTHERAPY

A) Surgery

1) Patients operated

6 patients had been operated before laser therapy. In 3 patients, the cancer which had been assessed as inextricable with laparotomy because of its locoregional extension and hepatic metastasis (1 case) or peritoneal (2 cases), was left in place. 3 patients had post-operative relapses : 2 had been operated according to Sweet ; 1 by subtotal esophagectomy, then by radiotherapy.

2) Contra-indications for surgery

24 patients were not operated, the main reason in each case being the following :

Age above 80 years	7
Mediastinal, bronchial or tracheal invasion	5
Hepatic or subclavicular metastasis	6
Associated ENT, lung or gastric cancers	4
Recent vascular brain attack	2

B) Radiotherapy and/or chemotherapy

1) 14 patients (12 squamous cell carcinoma of the esophagus, 2 adenocarcinoma of the cardia) had received radiotherapy and/or chemotherapy according to the following procedures :

Surgery + radiotherapy before laser treatment	1
Radiotherapy before laser (3 to 36 months)	8
Radiotherapy after laser	3
Radiotherapy + chemotherapy before laser treatment	1
Chemotherapy after laser treatment	1

2) Contra-indications to radiotherapy

Radiotherapy could not be applied to 17 patients for the following main reasons :

Hepatic or peritoneal metastasis	7	Relapse after Sweet operation	1
Recent vascular attack in the brain	1	Bilateral bronchial invasion	1
Age above 90 years	1	Linitis plastica	1
Refusal or stoppage of radiotherapy	4	Associated cancer of the antrum	1

III - INDICATIONS FOR LASER THERAPY

The indications for laser treatment were as follows :

Hematemesis	1
Minor cancer	1
Dysphagia or aphagia	28
. dysphagia for solids (stage I)	4
. dysphagia for liquids (stage II)	13
. complete aphagia (stage III)	11

IV - ENDOSCOPIC TREATMENT BEFORE LASER THERAPY

In 12 patients, before laser therapy, the following treatments were required :

Dilatations (1 to 3)	10 patients
Diathermic snare resections	1 patient
Insertion of a nasogastric feeding tube	1 patient

V - LASER THERAPY PROCEDURES

The fasting patients, after oro-pharyngeal anesthesia, without any other premedication, were treated with a CILAS Nd YAG laser. The coated fiber, with a coaxial CO₂ or nitrogen jet, introduced through the large operative channel of a fiberscope² (Olympus GIF 1T) allowing aspiration of insufflated gas, was used in the first 7 patients. The naked fiber passed through a operative channel of a standard fiberscope (Olympus GIF Q or P3) and applied directly to the tumor, was used in the other 23. From 1 to 39 sessions were carried out per patient (mean : 5.4). Initially, 1 to 3 sessions per week were required. Then, as soon as there was an improvement in symptoms, the sessions were spread out to intervals of 3 weeks to 5 months. The number of sessions, their duration, the outpatients treatments or not, were based on the result obtained, the general state of health and the tolerance of the patients to treatment. Thus, 18 out of 30 were treated as outpatients.

RESULTS**I - THE IMMEDIATE RESULTS OF LASER THERAPY**

The results were as follows :

Stoppage of hemorrhage	1/1	Persistence of dysphagia	6/28
Destruction of a minor cancer	1/1	Stenosis rendered passable	7/11
Improvement in the dysphagia	22/28		

The evolution of the dysphagia under laser treatment is shown in the following table :

<u>Before laser</u>	<u>Stages of the dysphagia after laser</u>			
patients : n = 28	0 n = 12	I n = 9	II n = 4	III n = 3
I n = 4	n = 2	n = 1	n = 1	n = 0
II n = 13	n = 7	n = 5	n = 1	n = 0
III n = 11	n = 3	n = 3	n = 3	n = 3

II - COMPLICATIONS WITH LASER THERAPY

3 complications occurred : 1 fatal pneumopericardium ; 1 pneumoperitoneum only discovered by X-rays, which proved regressive under medical treatment in a patient

suffering from linitis plastica extending to the cardia ; 1 esophago-tracheal fistula discovered 8 days after the first laser session did not appear to us to be imputable to the laser in this patient previously treated with radiotherapy and with 4 dilatation sessions.

III - ENDOSCOPIC TREATMENTS AFTER THE BEGINNING OF LASER THERAPY

During or after laser therapy, 15 patients required the following treatments :

Efficacious dilatations	10 patients
Ineffectual dilatations	1 patient
Insertion of a nasogastric feeding tube	3 patients
Prosthesis appliance for esophago-tracheal fistula	1 patient
Failure of the prosthesis for esophago-tracheal fistula	1 patient

IV - LONG-TERM RESULTS OF LASER THERAPY

19 patients died 8 to 460 days (mean : 105) after laser therapy began, for the locoregional extension, or metastasis or general repercussions of their cancer (emboli, pneumonia, anorexia, cachexia). 11 patients were still alive between 14 and 637 days (mean : 239) after laser treatment began, with a very clear improvement in the symptoms for 10 out of 11.

COMMENT

Nd YAG laser therapy is an effective palliative treatment (4-13) for cancers of the esophagus and of the cardia, with the following indications : patients with contra-indications for surgery and/or for radiotherapy ; surgically inextricable lesions ; post-operative relapses ; failures of radiotherapy and/or of chemotherapy ; inefficiency of other methods of endoscopic treatment (dilatation) and contra-indications for the insertion of prosthesis (upper or lower third of the esophagus, gastric cardia). This procedure is associated with a low incidence of complications and can be employed on an outpatient basis and in combination with radiotherapy and/or chemotherapy. The insertion of a prosthesis involves the risks of perforation, dislocation and obstruction by cancer shoots. In spite of this, prosthesis is necessary in cases of esophago-tracheal fistula, of external compression of the esophagus and when laser sessions become to frequent to maintain open the passage through the esophagus or cardia (14-16).

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