Egyptian Journal of Chest Diseases and Tuberculosis (2015) **64**, 243–248

HOSTED BY

The Egyptian Society of Chest Diseases and Tuberculosis

Egyptian Journal of Chest Diseases and Tuberculosis

www.elsevier.com/locate/ejcdt
www.sciencedirect.com

CASE REPORT

Bronchoscopic electrocauterization versus argon plasma coagulation as a palliative management for patients with bronchogenic carcinoma

Amgad A. Farhat [a,*], Mostafa Ragab [b], Ayman H. Abd-Elzaher [a], Ghada A. Attia [a], Mohamed S. Torky [a]

[a] *Chest Department, Tanta Faculty of Medicine, Egypt*
[b] *Chest Department, Zagazig Faculty of Medicine, Egypt*

Received 19 October 2014; accepted 26 October 2014
Available online 29 December 2014

KEYWORDS

Electrocauterization;
Argon plasma coagulation;
Bronchogenic carcinoma

Abstract One of the main indications for therapeutic endoscopic treatment is palliation of advanced cancerous lesions. The main purpose is the relief of dyspnea due to central airway obstruction, and the pre-operative evaluation to confirm that the lung beyond the obstruction is viable and that dyspnea is effectively related to the obstruction (Wahidi et al., 2007) [1].

This study was carried out in the Chest Department at Tanta and Zagazig University Hospitals from May 2012 to December 2012 on 20 cases with endobronchial tumor present in the proximal main or lobar bronchi and proved to be Non-Small Cell Lung Carcinoma (NSCLC) by histopathological examination of stage IIIA or IIIB according to the AJCC staging (Rami-Porta et al. (2011) [2]).

This study aimed to compare the clinical, functional and radiological outcome of electrocauterization and argon plasma coagulation as a palliative treatment for bronchogenic carcinoma.

Patients were classified into 2 groups: Group 1: Included 10 patients and they were managed by palliative electrocautery. Group 2: Included 10 patients and they were managed by palliative argon plasma coagulation. The number of therapy sessions was ranged from one to four sessions (15–40 min each), with one week interval between each session.

After application of bronchoscopic electrocautery on patients in group I, and argon plasma coagulation on patients in group II, there was more significant control of hemoptysis in group I compared to group II. Both groups showed a significant improvement in ventilatory function tests and arterial oxygen tension PaO_2 before and after bronchoscopic intervention. Also, there was no significant difference between the 2 groups as regards post treatment complications.

* Corresponding author. Tel.: +20 1223636830.
E-mail address: amgad_farhat@yahoo.com (A.A. Farhat).
Peer review under responsibility of The Egyptian Society of Chest Diseases and Tuberculosis.

http://dx.doi.org/10.1016/j.ejcdt.2014.10.003

It was concluded that, therapeutic bronchoscopic intervention either by electrocautery or argon plasma coagulation is a safe and effective method for palliative management of patients with central malignant airway obstruction.

Introduction

Endobronchial electrosurgery is used to remove endobronchial lesions in the trachea and bronchial tree, using either a rigid or a flexible bronchoscope. The thermal property of electric current is used to destroy tissue or coagulate bleeding sites. Many terms are used to describe the use of heat for tissue destruction as: electrosurgery, electrocautery, electrotherapy and surgical diathermy. We specifically use the term electrocautery (EC) to describe the electrosurgical effect that requires contact between probe and tissue for the conduction of electric current which ionizes air resulting in tissue destruction or hemostasis or both [3].

Argon plasma coagulation (APC) is a relatively recent electrosurgical method whereby there is argon gas ionization by an electric current to create a non-contact, homogeneous "bridge" for tissue coagulation or ablation [4,5].

The aim of the study is to compare between the two interventions (electrocauterization and argon plasma coagulation) as a palliative treatment for bronchogenic carcinoma by both clinical assessment and investigations including pulmonary function tests and radiological findings.

Patients and methods

This study was carried out in the Chest Departments at Tanta and Zagazig University Hospitals from May 2012 to December 2012 on 20 cases. This study was approved by the ethics committee, Tanta Faculty of Medicine.

Inclusion criteria

To be eligible for the study, patients had to have:

- Endobronchial tumor in which its main component is endoluminal and present in the proximal main or lobar bronchi and proved to be Non-Small Cell Lung Carcinoma (NSCLC) by histopathological examination of stage IIIA or IIIB according to the AJCC staging [2].
- In good general health without clinically significant medical history.
- No prior chemotherapy or radiotherapy.

Exclusion criteria

- Patients with respiratory or other organ failure.
- Patients with bleeding disorders.
- Patients with past history of allergic disorders to anesthetic drugs.
- Patients with grades I, II, IV of bronchogenic carcinoma.

Included patients were classified into 2 groups:

Group 1: Included 10 patients and they were managed by palliative electrocautery.

Group 2: Included 10 patients and they were managed by palliative argon plasma coagulation.

The number of therapy sessions was ranged from one to four sessions (15–40 min each), with one week interval between each session.

Preoperative fasting

Solid food should be avoided for 8 h preoperatively to allow sufficient time for gastric emptying. But liquid ingestion could be allowed up to 2 h preoperatively [6].

Premedication

Regular cardiovascular medication including antihypertensive drugs and respiratory medication should be continued until the day of intervention. Also intravenous atropine 0.5 mg could be given immediately prior to intervention [7].

Monitoring

Intraoperative monitoring including pulse, oxygen saturation, electrocardiography, and intermittent noninvasive measurement of blood pressure was done [7].

Table 1 Comparison between the 2 studied groups according to symptoms before and after 1 week of bronchoscopic therapy.

Symptoms	Group (I): number of improved patients/patients having symptoms, no. (%)		Group (II): number of improved Patients/patients having symptoms, no. (%)		*P* value
	Before treatment	1 week after	Before treatment	1 week after	
Cough	10/10 (100%)	6/10 (60%)	10/10 (100%)	7/10 (70%)	0.085
Hemoptysis	9/10 (90%)	5/10 (50%)	8/10 (80%)	7/10 (70%)	0.048*
Dyspnea	10/10 (100%)	6/10 (60%)	10/10 (100%)	7/10 (70%)	0.085
Fever	7/10 (70%)	6/10 (60%)	6/10 (60%)	5/10 (50%)	0.057

* $p < 0.05$.