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11th International Meeting on General Thoracic Surgery
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5th Meeting of the Thoracic Oncology, Thoracic Surgery, Techniques & Transplant, Respiratory Nursing and Respiratory Physiotherapy Areas of the Spanish Society of Pneumology and Thoracic Surgery (SEPAR)
Sociedad Española de Neumología y Cirugía Torácica (SEPAR)

10th International Workshop on Surgical Exploration of the Mediastinum and Systematic Nodal Dissection
Hospital Universitari Mútua Terrassa | Universitat de Barcelona

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3rd Joint Meeting of the Spanish Society of Thoracic Surgery (SECT)
SECT Sociedad Española de Cirugía Torácica

30th Congress of the "Asociación Iberoamericana de Cirugía Torácica" AIACT

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SURGERY FOR LUNG ABSCESS (LA)
THE DEVIL IN THE DETAILS

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„ubi pus ibi evacua” (Celsus, 2nd century AC)

Introduction

This is a narrative review type lecture on the current surgical concepts regarding LA, a circusmscribed cavitating inflammatory lung parenchyma condition, rarely requiring surgical intervention, but when it does, it is a serious challenge. Low frequency on the thoracic surgical horizont and very wide range of clinical variables are limiting centre/personal experience. As a result best practice is based on low level evidences (Anecdotology). Clinical experience suggests, that the patient him/herself surrounding the lesion is the decisive predictive factor commanding a strategically different approach from our standard lung cancer surgery dictated decision making patterns.

Pathobiology

Abscess of the lung is a highly dangerous result of successfully functioning defence mechanisms within the pulmonary parenchyma resulting in a time bomb ready to explode causing sepsis. This is a non-anatomically preformed complex cavity. The lesion is closely related to necrotising pneumonia and lung gangrene, similarly disturbing entities from a thoracic surgical point of view.

Patients & Rationales: tactics

The typical patient is an aged and/or multimorbid (immuncompromised by different vectors) person exposed to polymicrobial, not unfrequently antibacterial resistant flora. Primary treatment is a clinical microbiologist driven antibiotic treatment and general supportive therapy with agressive physiotherapy. Resistance to conservative therapy over around 6 weeks, quick deterioration, complications (massive haemoptysis, repeted contralateral spillage, grim sepsis) and/or lesion size over 60-70mm mandate interventional evacuation, thoracic surgical solution included.

Approach of invasive strategy (Evacuation according to Celsus) is dictated by the location of the lesion. Central abscess with draining bronchus is a candidate of endoscopic canalisation by rigid bronchoscopy (Friedell method: evacuation per vias naturales / natural orifice surgery). This is rarely a „one-shot" procedure. Peripherial lesions resistant to therapy, with threatening sepsis or repeated massive haemptysis might require surgery. Indirect procedures include external drainage (Monaldi and modifications: scalpel/energy driven or image guided) while direct surgery means resection, usually parenchyma sparing one.

Results

Expected mortality of surgical cases ranges between 10-45% defined by the already depleted reserves of the patient, Fatality risk is increased paralelly to the agressivity of the approach, obviously non an independent predicitive factor. Consequent bronchopleural fistula in a detoxicated patient results in multistaged procedures, in which negative pressure therapy has a definitive role. Turning life threatening lung abscess to a circumscript, tamed thoracic empyaema means choosing the lesser evil. Lung resection (parencyma sparing) is a last resort procedure. Delayed and retarded lung expansion is rather the norm, than a complication. No contemporary data on auxiliary pleural compression therapy (artificial pneumothorax) or protective limited thoracoplasty are available albeit both are theoretically existing supportive methods. Hospital stay and costs are irrelevant factors in this highly fragile group fo patients.

Discussion

Whenever surgery is considered, indirect procedures are to be preferred if location /symptomatology permits. Drainage of LA is not a simple bedside / dressing room procedure ideal for junior staff. Standby anesthesia increase the safety of the intervention (Rasmussen artery rupture)

Anatomical resection carries the high risk of bronchopleural fistulas. Resection zones and postoperative pleural space management are in need extra attention. Direct surgery (resection) is manoeuvre sensitive (do not push&press; need for tactile information) and is negatively affected by procedural time. Size & consistency of parenchymal lesion to be removed supports open thoracotomy approach.

Postprocedural drainage (VAC included) is a highly demanding nursing task. Supporting therapy – physiotherapy and diet – postural drainage, early mobilisation are basic elements of the lengthy postoperative period in a stark contrast to the current reduced hospital stay policy trends.

Conclusion

Treatment of LA in extreme forms (therapy resistance, life threatening complications such as haemoptysis and sepsis) remains to be a thoracic surgical task. Pathoanatomy and other features make it one of the last bastions resisting the dictum of minimal surgical invasivity. Complexity and variance of clinical variables make LA a poster-boy of optimally invasive thoracic surgery, where restraint driven decision making is the key player.

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