

P2673**High yield of liquid mycobacterial culture in pleural fluid and tissue**

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Background: Liquid culture media are reported to increase the yield of positive mycobacterial cultures in sputum by 10-20% but its value for pleural fluid is not well established.

Method: We investigated 66 consecutive patients with exudative effusions of suspected inflammatory or infectious nature in a single session and directly compared the yields for a diagnosis of TB of a spot sputum smear and culture, pleural fluid ADA and cell count, low volume (5ml) and high volume (100ml) liquid mycobacterial culture and pleural biopsy histology and culture. A final diagnosis of TB was established in 50 patients (75.8%) by histological proof of granulomatous inflammation or any positive culture. All TB cultures were performed in an automated liquid culture system (MGIT 960, Becton Dickinson).

Results: Available results among these 50 patients indicated the following respective yields:

22/34 (64.7%) for spot sputum (smear positive: 17.1%; culture positive: 61.3%); 44/46 (95.7%) for pleural fluid adenosine deaminase (ADA) ≥ 50 U/l; 32/41 (78%) for ADA ≥ 50 U/l combined with lymphocyte predominance; and 31/46 (67.4%) for pleural fluid MGIT culture (low volume: 56.5%; high volume: 63%; $p=0.45$). Non invasive testing (sputum and pleural fluid analysis) had 100% yield with 72% microbiologically proven cases. The yield of pleural biopsy was 44/49 (89.8%; culture: 33/44, 75%; histology: 40/49, 81.6%).

Conclusion: Liquid mycobacterial culture has an exceptionally high yield in both pleural fluid and tissue and should be routinely used.

P2674**Pleural tuberculosis: A study of 46 cases**

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Pleural tuberculosis (TB) remains a diagnostic challenge. It is the most frequent extra pulmonary localization.

To focus on clinical, radiological, biochemical and histopathological characteristics of pleural TB and the sensitivity of the various diagnostic tests. We study retrospectively 46 patients in whom pleural TB were diagnosed in our military department. The mean age was 29,8 year (12 to 78 year). 78,2% were male. A past medical history of TB was found in 21% of cases. We noticed a huge delay between onset of symptoms and hospitalization (35 days). Among these symptoms, the most frequent are: chest pain, cough and constitutional symptoms. The TB effusions were all exudative with a mean lymphocyte fraction of 76,5% (range: 30-100%). Tuberculin skin test was positive in 41,3% of cases. In 10,8% of cases, the diagnostic of pleural TB was made by detection of acid fast bacilli in sputum. Pleural fluid, sputum and bronchial wash culture had a poor yield for TB of 8,6% each. Diagnosis was confirmed by closed pleural biopsy in 73,9% of cases and by thoracoscopy in 21,7% of cases. 4,4% of cases was histologically non diagnostic. Dissemination of TB in other sites was detected in 19,5% of cases (pulmonary, pericardial, peritoneal, lymph node). Treatment included anti-TB drugs, thoracentesis and physiotherapy. The outcome was favourable in all cases. 45,6% of patients develop pleural thickening 6-12 months after beginning of treatment. TB, whatever its localization, is an infectious disease which can be totally cured by combining anti-TB drugs. Physical therapy and pleural rehabilitation should be implemented early after confirmation of diagnosis of pleural TB in order to limit sequelae.

P2675**Features of diagnostics for exudative pleurisy of tuberculosis etiology**

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Background: To study the features of diagnosis and therapy for exudative pleurisy of tuberculous etiology (EPTE).

Materials and methods: There analyzed 122 cases with EPTE. Men were 76 (62, 3%), women-46 (37, 7%), aged between 17 to 69 years. 1-group included 59 (48, 4%) patients who had revealed/or suspected EPTE based on clinical and X-ray data after admitting in out-patient clinic or antituberculous dispensary. 2-group included 63 (51,6%) patients who primarily were hospitalized in general medical network (GMN) clinics and underwent erroneous treatment for different diseases (pneumonia, intercostal neuralgia, acute respiratory diseases, myocardial infarction, cholecystitis etc.) within 7-34days.

Results: Focal TB was diagnosed in 55 (45, 1%), infiltrative -34 (27, 9%), disseminated- 11 (9, 0%), pleural TB - in 8 (6,6%), intrathoracic lymphatic nodes - in 14 (11, 5%). Bronchoscopy revealed active specific changes in 34 from 63 examined patients including rough deformed cicatricial changes in 11 patients. Mantoux test was positive in 84 (68, 9%). M.Tuberculosis (MBT) were found in

sputum by Tsil-Nelson in 16 (13,1%) patients, by PCR- in 27 (22,1%). By culture method MBT in sputum was detected in 21 (17,2%) cases, in pleural fluid -in 12 (9,8%). Blood-sedimentation test rise was noted in 102 (83,6%), leukocytosis in 105 (86,1%). Revolt positive test was revealed in exudates.

Treatment was managed by standard scheme of DOTS strategy and with punctures of pleural sac. Liquidation and resorption of exudate was obtained within 8-28 days from treatment date.

Conclusion: Exudative pleura diagnostics is a challenge. It should be paid an important place to general medical network doctors' high concern in regard to TB.

P2676**Advantage of chest tube drainage in tuberculous pleurisy without active pulmonary tuberculosis**

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Introduction: Early effective drainage may hasten clearance of pleural effusion and reduce the occurrence of residual pleural thickening (RPT) in patients with symptomatic loculated tuberculous pleurisy (TBP).

Objectives: The effects of a large-bore chest tube drainage (CTD) with a small-bore percutaneous drainage (PCD) or no-drainage group in TBP were compared.

Methods: We reviewed retrospectively the records of TBP patients without active pulmonary TB lesion that diagnosed by thoracoscopic biopsy or high ADA of pleural fluid from 2005, January to 2010, December. All patients were treated with anti-TB medication over 6 months. We divided into 4 groups [group A; no-drainage (n=7), group B; CTD without loculation (n=10), group C; CTD with loculation (n=9), group D; PCD with loculation (n=12)]. We compared the RPT, days of hospitalization and tube inserted between group A vs B, and group C vs D.

Results: In non-loculated TBP patients, mild RPT were remained in 1 of 7 in group A and none of 10 in group B. In loculated TBP patients, mild RPT were remained in 1 of 9 in group C and 3 of 12 in group D, and moderate RPT were found in only group D (2 in 12). Days of hospitalization were 8.7 \pm 1.5 in group A vs 10.6 \pm 3.3 in group B, and 16.7 \pm 10.2 in group C vs 10.4 \pm 3.9 in group D. Days of tube inserted were 6.8 \pm 2.3 in group C vs 4.6 \pm 2.8 in group D.

Conclusion: Although using a large-bore CTD needs longer days of admission and tubing, CTD was more effective than PCD in RPT reduction of loculated TBP, and was not advantageous to no drainage with diagnostic thoracentesis in RPT reduction of non-loculated TBP, in addition to definite diagnosis by thoracoscopic biopsy.

P2677**Pleural tuberculosis: A retrospective study in the tuberculous control unit of Blida between 2005 and 2009**

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Introduction: Pleural tuberculosis is among the most common sites of extrapulmonary tuberculosis, which represent 30% of all tuberculosis cases in Algeria. She reached preferentially the young adults.

Aims and objectives: The aim of our study is to clarify the characteristics of the epidemiology, diagnosis, treatments and outcome of pleural tuberculosis and also to clarify the predisposing factors.

Methods: Our retrospective study concerned 117 cases of tuberculous pleurisy supported for 05 years from 2005 to 2009 among a total of 764 cases followed for extrapulmonary tuberculosis at the Blida tuberculous control unit.

Results: Our study has assembled 67 men and 50 women with a mean age of 30 years. Comorbidities in number of 7 are represented by 4 cases of metabolic syndrome. The impairment is most often right sided in 57.2% of cases, and bilateral in 11% of cases. The investigations carried out showed a tuberculin allergy in 31.6% of cases. The histology diagnosis was mainly contributing in 42.7% of cases by finding caseofollicular tuberculous, and in 23.9% of cases by a tuberculoïd inflammation. The antibiotic treatment was started in all cases with a favorable outcome to the healing in 50.4% of cases and with sequelae in 45.2% of cases. However, we noted 4 cases of lost sight and one patient transferred for therapeutic monitoring.

Conclusion: The management of tuberculous pleurisy is correlated by the improvement of diagnostic methods, certainty including pleural biopsy and thoracoscopy.

P2678**Specific pulmonary lesion in patients with tubercular spondylitis (TS)**

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120 patients with active pulmonary tuberculosis (PT) and diagnosis of TS were studied. It was the patients at the age from 18 to 72 years old. The patients were examined due to complaints of spinal pain. These were mostly the lesions of

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thoracic spine 46 (38,3%). From 2 to 8 vertebrae were affected, disseminated forms were diagnosed in 62 (51,6%) patients. In 113 (94,2%) the TS was complicated with paravertebral abscesses, in 92 patients (76,6%) – with epidural abscesses, in 49 (40,8%) - neurological disorders were diagnosed. 62 (51,7%) had simultaneously diagnosed PT and spine lesion, in 58 (48,3%) the TS was diagnosed in 2,5±1,8 years after beginning of PT therapy. Clinical forms of PT: disseminated 44 (36,7%), infiltrative 38 (31,7%), fibrocavitary 22 (18,3%), tuberculosis of intrathoracic lymph nodes 10 (8,3%), focal 6 (5,0%). Pulmonary tissue destruction was diagnosed in 83% of cases. Mycobacteria tuberculosis (MBT) were identified in respiratory material of 95 (79,2%) patients. Multiple drug resistance of MBT was diagnosed in 73 (60,8%) patients. All patients required surgical treatment of TS. The intensive chemotherapy during 4,5±2,1 months, positive clinical and x-ray dynamics and negative results of bacterioscopic examination of sputum for MBT detection has helped to carry out surgical stage of treatment in 115 patients. 5 (4,2%) patients had no surgical treatment of TS because of advance of the generalized tuberculosis.

Conclusion: In case of detection of associated affection of PT and TS it is necessary to carry out not less than 2 months of intensive therapy using 5 antituberculous drugs, with further surgical stage at the affected spine part and continuation of specific therapy for not less than 6 months.

P2679

Practicing empirical anti-tuberculosis treatment (ATT) in suspected spinal tuberculosis (STB): Follow up of 33 cases from Sri Lanka, a limited resource setting with an intermediate disease burden

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Background: Some patients with clinically suspected STB are given empirical ATT under specialist supervision, without histological or microbiological confirmation of disease, due to lack of resources.

Aim: To assess the outcome following empirical ATT in a cohort with a clinical diagnosis of STB.

Methodology: We followed up 33 patients diagnosed with STB based on history, negative blood culture, spinal CT and/or MR imaging and supported by tuberculin test and inflammatory markers. None had microbiological or histological confirmation. All were given standard category I ATT, with prolonged regimen for neurologically complicated disease.

Results: CT/MRI showed end plate destruction/sclerosis and/or evidence of discitis in 28 patients, with paraspinal and psoas abscesses in some. In the remaining five, imaging findings were atypical. One patient died and another with body and pedicle destruction was found to have metastatic spinal disease. 22 completed ATT, while 9 are still on treatment, completing minimum of six months. All 31 patients followed up, including 4 with atypical imaging features, had symptomatic improvement with ESR normalizing in 90% and weight gain in 77%. Serial spinal X-rays did not show worsening in any. None had ATT related major adverse effects. Six with neurological deficits had completed 12 months ATT, where the recovery was full in 4 and partial in 2.

Conclusion: Imaging based diagnosis of STB and empirical ATT with close supervision appears to be safe and effective, in a setting with high degree of clinical suspicion, low drug resistance and limited resources.

P2680

Tuberculous spondylitis as a mirror of a severe epidemic situation

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Introduction: Tuberculosis of bone and joints (BJTB) is one of the leading forms among extrapulmonary TB. The aim was to estimate a spectrum of extrapulmonary TB in Novosibirsk – the capital of Siberia, and reveal a tendency in BJTB.

Material and methods: Statistical reports were estimated, also 177 patients with BJTB were enrolled in study.

Results: Among all cohort of extrapulmonary TB female patients was 50.9% and male patients - 49.1%, but in BJTB ration female:male was 1:2.



Figure 1

The share of BJTB in extrapulmonary TB increased from 3.3% in 1992 up to 28.0% in 2006, and reached 48.6% in 2008. Among BJTB tuberculous spondylitis prevails (72.2%), mostly complicated by neurological disorders and paravertebral abscesses and combined with TB of other organs. Nevertheless in 65.5% only 2 vertebrae were involve in TB process. In 17.2 debut of disease was acute or sub-acute, but diagnostic took 14.1 months on average. One of the main reason is poor alertness physician for tuberculosis and late X-ray examination. Typical X-ray picture of TB spondylitis is shown on figure 1.

Poverty, unemployment and alcoholism resulted in poor efficiency of the therapy in 43.7% patients. Patients endomorphic body type in 8.5 times more likely to have delayed consolidation.

Conclusion: In regions with severe epidemic situation it is necessary always to keep in the mind TB in patients with back pain and make X-ray examination as soon as possible.

P2681

Dysfunction of external respiration in patients with spinal tuberculosis

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Aim of the study was to determine the peculiarities of respiratory system dysfunctions and their effect on spinal tuberculosis clinical course.

We studied FER in 95 patients with spinal tuberculosis aged from 20 to 60 yr old to determine the peculiarities of dysfunctions.

Gravity of pulmonary breathing capacity dysfunctions was identified by abatement degree of VCL and MPBC: I degree – decrease in 16-35%; II degree - decrease in 36-55%; III degree – decrease more than 55%;

In 72 patients were revealed disturbances of FER indices. Of them, 19,5% patients had moderate embarrassment of ventilation, 45,8% -considerable, and 34,7% - full-blown. Thus, in 58 patients LVC was decreased in considerable and strong embarrassment of ventilation in 1,5-2 times as compared with normal one and only in 14 patients was followed moderate decline.

Study results established direct relation of LVC index decline from the size of spinal deformation. Therefore, LVC sharp decline was followed in patients with the maximum size of kyphosis (102,0±4,0), considerable - in moderate size of kyphosis (118,0±3,0). Normal indices and LVC moderate decline were noted in patients with minimum size of kyphosis (154,0±5,0). In 47 patients restrictive type of embarrassment of ventilation was observed. Combined type occurred in 14 patients, obstructive - in 11. Should be noted that despite LVC considerable and sharp decrease in most of examined patients, MPBC was rather in a lesser degree: in 17 patients oversized MPBC indices were determined, in 32 their moderate decline was noted.

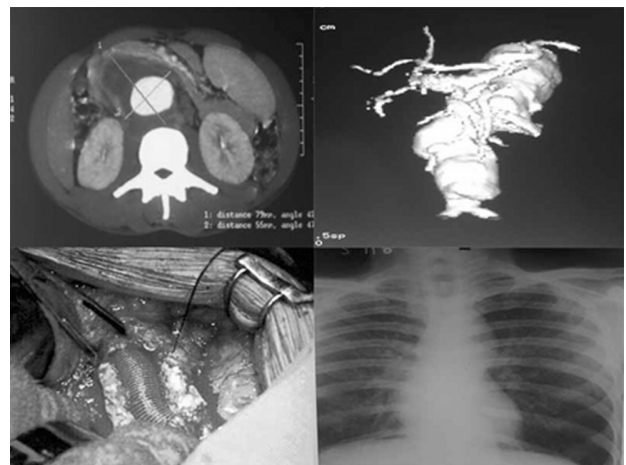
Consequently, the presence of cerebrospinal dysfunctions depending on their depth and localization embarrass significantly the ventilation indices in patients with tuberculous spondylitis.

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Tuberculous mycotic aneurysm of aorta: A rare complication

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39 year old male was started on antituberculous treatment based on symptoms and miliary shadows on chest x-ray. 2 months later he had persistent abdominal pain. Abdominal examination revealed a pulsatile palpable mass with brui. Ultrasound & CT abdomen confirmed aneurysmal dilatation of aorta from hiatus to bifurcation with infra renal involvement. No leak or dissection.



Surgical exploration revealed aneurysm with areas of impending rupture, clots & caseous material. Endoaneurysmal graft repair surgery was done. Clot was teem-

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ing with AFB. Postoperatively patient had paraplegia due to ischemic myelopathy.

Tuberculous mycotic aneurysm of aorta is a rare complication with poor prognosis. Less than 50 cases have been reported. Combined medical & surgical therapy is advised.

P2683**Tuberculosis in residual pleural cavity after segmental pulmonary resections and its surgical treatment**

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Repeated operations on account of development of tuberculosis in the residual pleural cavity after segmental resections were performed in 54 patients (males – 35, females – 19) in ages between 17 and 46. Residual cavity due to incomplete lung spread developed on the left in upper segments of thoracic cage in 30 patients, on the right – in 24 patients after segmental (9), combined resections (16), lobectomy (26) and bilobectomy (3) on account of fibrous-cavernous tuberculosis. Tuberculosis in residual cavity was diagnosed in 6 months – 1 year after the operations in 28 patients, in 3 years – in 19, in 4-5 years – in 7. Bacteria excretion in sputum was detected in 41 patients (75.9%).

After pre-operative chemotherapy and general treatment, lobectomy was performed in 1 patient, pneumonectomy – in 15, thoracoplasty with myoplasty of residual cavity – in 38. Good effectiveness of repeated operations stated in 43 patients (79.6%), unsatisfactory results due to the exacerbation of bronchoalveolar fistula and pleural empyema – in 7 (12.9%). Lethality in 4 patients (7.5%) occurred from the progress of bronchial fistula and pleural empyema. In 3-10 years after operations clinical healing was established in 82.1% of patients. Lethality in 17.9% occurred because of progress of bronchial fistula, pleural empyema and pulmonary tuberculosis.

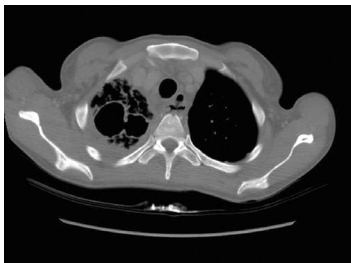
Conclusion: Tuberculosis in residual pleural cavity after segmental pulmonary resections is a heavy pulmonary and pleural pathology characterized by chronic course. Repeated operations – pneumonectomy and thoracoplasty with myoplasty of the residual cavity – are highly effective and allow healing 82.1% of patients.

P2684**Asymptomatic oesophageal and bony involvement in an HIV-negative female with pulmonary TB**

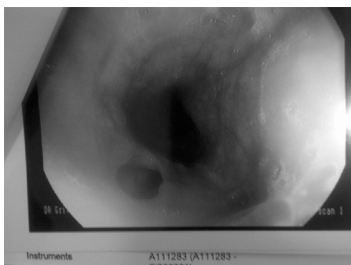
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A 44 year-old lady of Afro-Caribbean origin presented with a 4-months history of productive cough, night sweats and weight loss. There were no other symptoms or significant medical history. Chest auscultation revealed right-sided apical bronchial breathing and coarse crepitations mid to lower zones. Chest radiography confirmed apical cavitation and right-sided consolidation. Sputum microscopy and molecular polymerase chain reaction test showed fully sensitive mycobacterium tuberculosis (TB).

Thoracic computed tomography revealed a pneumomediastinum, oesophageal perforation and gaseous permeative infiltration of T1-T3 vertebrae.



A human immunodeficiency virus (HIV) screen was negative. Oesophago-gastro-duodenoscopy was normal apart from a 2cm punched out lesion at 23cm of the oesophagus. Quadruple anti-TB therapy and enteral feeding were



established via a percutaneous gastrostomy tube to avoid mediastinitis and allow healing.

Clinically occult oesophageal perforation and bony involvement in the absence of HIV infection or miliary TB has not been previously described. The mechanism of this is unclear, but may have involved a caseating mediastinal lymph node.

P2685**Surgical treatment of first found pulmonary tuberculosis at ineffectiveness of DOTS therapy**

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Surgeries were performed in 43 patients (males-27, females-22) in ages between 18-53 years old. All the patients had first found destructive tuberculosis of lungs, and ineffectiveness of DOTS therapy was stated in them. During 2-3 months, 23 patients received chemotherapy in hospital (isoniazid, rifampycin, pyrazinamide, ethambutol or streptomycin) and ambulant therapy (isoniazid and rifampycin) under the 1st category of DOTS during 4-6 months.

After diagnosing pulmonary tuberculosis, the treatment according to the 1st DOTS category (intensive phase-2-3 months, supporting phase 4-6 months) was received by 20 patients in the first phase. Because of ineffectiveness of chemotherapy, the treatment was continued under the 2nd DOTS category intensive phase chemotherapy with 5 preparations (H, R, Z, E and S) during 3-4 months and ambulant phase (isoniazid, rifampycin, ethambutol) during 6-8 months. Ineffectiveness of DOTS based chemotherapy-continuing bacteria excretion, presence of pulmonary destruction served as indication to surgical treatment. Segmental pulmonary resection was carried out in 7 patients, lobectomy in 12, pneumonectomy in 24. Good clinical effect of performed operations was reached in 40 patients (93.0%). Unsatisfactory results (bronchial fistula and pleural empyema) were stated in 2 patients (4.7%). Lethality in 1 patient (2.3%) was caused by the progress of pulmonary tuberculosis and pleural empyema.

Conclusion: When DOTS chemotherapy is ineffective, surgical treatment of first found destructive pulmonary tuberculosis is an important and effective final stage of complex therapy that prevents transition of patients into the group of chronic patients.

P2686**Method of treatment of destructive tuberculosis of single lung with extensively drug resistant mycobacteria tuberculosis**

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Treatment of patients with TB with total defeat of one lung and presence of destruction in the other, with a constant allocation of extensively drug resistant Myc.tuberculosis (XDR MBT), remains extremely weak. Under these conditions, the role of surgical and endoscopic therapies is rising.

Objective: To improve treatment of patients with fibrous-cavernous tuberculosis of a single lung with XDR MBT due to valvular lung volume reduction (VLVR) and local extrapleural thoracoplastic.

Material and methods: The treatment was performed in 13 patients (10 men, 3 women) of fibrous-cavernous tuberculosis of a single lung with XDR MBT. The patients' age ranged from 30 to 54 years. Disease duration ranged from a half to 8 years, all patients were smear.

The essence of the proposed method is to use endobronchial non-return valve. Valve ensures the smooth discharge of air, sputum, bronchial content in the ex-hale, and cough. Inverse of air in the lung lesions did not occur. Thus, gradually hypoventilation was being reached, until atelectasis of lung tissue. VLVR performed during treatment with reserve anti-TB drugs. In 6 patients with VLVR was supplemented extrapleural thoracoplastic.

Results: Time that valve spent in the bronchus depended on the rate of cavity closure and cessation of bacteria and ranged from 7 to 274 days. Abacillation was achieved in 100% of patients, the cavity was closed in 76.9% of patients.

Conclusions: The proposed method of treatment of patients with tuberculosis enables us to reduce lung cavity and reach abacillation patients with XDR MBT in the absence of the effect of chemotherapy with reserve anti-TB drugs and a high risk of single lung resection.

P2687**Artificial therapeutic pneumothorax induced by video assisted thoracoscopic surgery – Surgical treatment option in the modern management of pulmonary tuberculosis – Case presentation**

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Introduction: Pulmonary tuberculosis (PTB) multidrug resistant (MDR) is still a major global health problem. After the discovery of antimycobacterial therapy the use of therapeutic pneumothorax (TP) decreased. Increased prevalence of PTB

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MDR, multiple adverse effects and high cost of TB drugs have returned the attention to this old method of treatment.

Objective: The aim of this paper is to highlight the usefulness of TP induced by video assisted thoracoscopic surgery (VATS) as adjuvant therapy in cavitary PTB MDR.

Method: A 27-year-old, male patient was diagnosed with cavitary MDR PTB. Because the individualized treatment has proved ineffective and the patient denied resection surgery, we performed repeated intrapleural air insufflations. In the absence of satisfactory lung collapse due to pleural adhesions, it was decided to associate a minimally invasive surgical procedures – VATS. Multiple adhesions localized to the right upper lobe and 6 right segment were destroyed (monopolar cautery, LigaSure) with full release of the lung. Pleural cavity was controlled with a single tube which was maintained clamped until his removal in the first postoperative day.

Results: The surgical procedure was well tolerated without major complications and with sufficient parenchymal collapse, subsequently maintained by periodic air insufflations. After 4 months the patient was smear and culture negative and the cavity was reduced in size.

Conclusions: In carefully selected cases, TP is an effective adjuvant procedure in the treatment of MDR PTB. VATS is useful for lysis of adhesions when lung collapse is insufficient.

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A case of breast tuberculosis in developed country with low incidence of tuberculosis

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The Czech Republic belongs to the countries with low incidence of tuberculosis. We present a very rare case of breast tuberculosis (TB) resembling a breast malignancy or non-specific abscess to document the possibility of misdiagnosis and diagnostic challenge.

Objectives: Differential diagnosis of a painful, firm lump in a breast of 81 years old female. Review of important issues relating to the diagnosis, clinical features, and management of breast tuberculosis.

Case presentation: A 81 year-old female without medical history of TB was hospitalised for a painful, firm lump in her right breast. Neither the mammography nor histology confirmed the diagnosis of breast carcinoma. Chest radiograph, chest CT scans and sputum smear or cultivation did not prove lung TB. Bronchoscopic examination showed anthracotic pigmentations without endobronchial granulations or fistulas. Both bronchial biopsy and bronchial aspirate were negative for *Mycobacterium tuberculosis*. The pathologists in the biopsy of the breast lesion described a combination of epithelioid cell granulomas and caseous necrosis. Microscopic analysis of the lump pus confirmed the presence of acid-fast bacilli. Lump pus cultivations were positive for *Mycobacterium tuberculosis*. A four-drug regimen (isoniazid, rifampicin, ethambutol, and pyrazinamide) and local lavage with AT drugs led after two months to the remission of the lump and healing of the fistula.

Conclusion: In breast TB the clinical and radiological features are not specific. The misdiagnosis with the carcinoma of the breast or non-specific abscess is possible. Even in countries with the low incidence of tuberculosis the TB of the breast can be observed.