

Mat Soc Med. 2012 Jun; 24(2, Suppl 1): 20-31

Received: 10 April 2012

Accepted: 15 May 2012

CONFLICT OF INTEREST: none declared.

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doi: 10.5455/msm.2012.24.s20-s31

On the Occasion of the 4th Congress of Infectiologists of Bosnia and Herzegovina with International Participation

Izet Masic, Nada Koluder-Cimic, Sead Ahmetagic, Rusmir Baljic

On Behalf of Scientific and Organizing Committee of the 4th Congress of Infectious Diseases of Bosnia and Herzegovina with International Participation

SUMMARY

The 4th Congress of Infectiologists of Bosnia-Herzegovina with international participation was held in Konjic, on 30. May to 02. June 2012. In addition to the prominent infectious disease experts from almost all university centers in B&H, the teachers at medical schools in Bosnia-Herzegovina, infectious disease specialists who work in health institutions in B&H, this Congress was attended by infectious disease experts from Serbia (12 participants), Turkey (3 participants), Croatia (3 participants), Macedonia (3 participants), Germany (2 participants) and Montenegro (2 participants). Topics included: Infections of the skin, soft tissue and bones, Sepsis and endocarditis, Infectious diseases emergencies and pediatric infectology, Emerging and reemerging infectious diseases, Hospital infections, Sexually transmitted diseases, Infectious diagnostic and therapeutic protocols. Participating invited speakers were following professors: Salih Hosoglu (Turkey), Hakan Leblebicioglu (Turkey), Resat Ozaras (Turkey), Karsten Plötz (Germany), Ilija Kuzman (Croatia), Bruno Baršić (Croatia), Goran Tešović (Croatia). In addition to experts in infectious diseases at this Congress, their works were presented by experts from other medical disciplines, but with infectious character issues (Professors: Sead Ahmetagic, Ismet Gavrankapetanović, Zora Vukobrat-Bijedić, Senija Rašić, Halima Resić, Adnan Kapidžić, Ivo Curić, Jelena Ravlija, Amela Begić, Izet Mašić, Sadeta Hamzić, and others). Some of the papers that were presented at this Congress have been published in extenso, in the Medical Archives and *Materia Socio Medica*. One part as abstracts (both journals are indexed in over 10 databases), and will be electronically available to the general scientific community in Bosnia-Herzegovina, Europe and worldwide. In this way, the Bosnian infectious disease experts, as a science and profession, will be worthily represented to the colleagues from other countries in the region and beyond.

Keywords: infectious diseases, Bosnia and Herzegovina, the fourth congress of infectious diseases B&H.

Brucellosis Complicated with Pulmonary Thromboembolism - Case Report

Velida Mulabdic, Snjezana Mehanic, Fikret Pinjo, Vesna Hadziosmanovic, Jasna Topalovic, Rusmir Baljic
Clinic for Infectious Diseases, Clinical Center of Sarajevo University, Bosnia and Herzegovina

SUMMARY:

Pulmonary involvement is a rare manifestation of brucellosis which occurs by inhalation of infected aerosol or by hematogenous spreading. Pulmonary manifestations, including pleural effusions and pneumonias, can be found in up to 16% of complicated cases of brucellosis. A case report of complicated brucellosis is presented. A male patient aged 30, smoker, a cattle-breeder who lives in a countryside, was admitted to the Clinic for Infectious Diseases. He complained for 3 months about fever, night sweating, pain in ankles and lumbar spine, fatigue, weight

loss, non-productive cough. Physical examination revealed auscultatory in the lower part of the right hemithorax, weakened to silent breath sound, liver and spleen palpable 1 to 2 cm, ankles mildly swollen, without redness. Blood tests revealed elevated CRP, ESR, fibrinogen and transaminases, mild leucopenia and anaemia. Diagnosis was proved by serological tests and positive blood cultures. As chest X-ray was suspicious for pleural effusion, chest CT and ventilation/perfusion lung scan were performed and showed pulmonary thromboembolism (PTE) presented in approximately 11%. Approximately 800 ccm of serous exudate was evacuated by thoracocentesis. Radiological examination showed no osteoarticular involvements despite clinical signs of lumbosacral syndrome. He was treated with prolonged causal therapy combined with anticoagulant and symptomatic/supportive therapy and responded well, with improvement. Literature data lacked reports on brucellosis complicated with PTE without objective risk factors. Relevant immunological tests performed implicate infection triggered immunological processes leading to PTE.

Key words: brucellosis, pneumonia, pleural effusion, thromboembolism.

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Acute Bacterial Meningitis, Etiology and Prognosis

Alija Drnda, Belma Gazibera, Alma Sejtarija-Memisevic, Selma Hasimbegovic- Ibrahimovic
Clinic of Infectious diseases, Clinical Center University of Sarajevo, Bosnia and Herzegovina

SUMMARY

Introduction: Bacterial meningitis that results from acute infection of the meninges represent a major medical problem that requires early access to diagnosis and treatment. In 30% of cases despite the powerful and early appropriate therapy and intensive care complications occur, which may prolong the clinical course or leave sequelae.

Aim: Evaluate patients with acute purulent meningitis during the five-year period hospitalised at the Clinic for Infectious Diseases, Clinical Center of Sarajevo University, with special reference for the etiologic verification, pre existing conditions and complications.

Methods: A retrospective analysis of medical records of hospitalized patients during the five- year period from 2007. to 2011. **Results:** We had 73 patients aged from 3 months to 75 years, 57% (42/73) patients were male, and 43 % (31/73) female. In 27(35%) cases we had etiologic verification. Out of 25 isolates of bacterial meningitis *S. Pneumoniae* were confirmed in 44%, *N. meningitidis* in 28%, *H. influenzae* in 12% and other bacterial agents in 20% of isolates. 40% of the patients were represented with pre existing conditions such as otitis media, sinusitis, mastoiditis, hematooncological diseases, postoperative and posttraumatic recidivate meningitis. We had 10 % of the patients had complications (early and late). One patient died. State of consciousness and convulsions were bad prognostic sign.

Conclusion: Pre existing conditions, especially the one with prolonged clinical course and without good therapy treatment, causing meningitises with more severe clinical form and due to it development of both early and late complications, which in the further course requires a multidisciplinary approach.

Key words: Acute bacterial meningitis, complications.

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Intestinal Amoebiasis Among Patients with Ulcerative Colitis: Impact on Clinical Course of Disease

Zora Vukobrat-Bijedic¹, Azra Husic-Selimovic¹, Nina Bijedic²
Gastroenterohepatology clinic, Clinical Center of University of Sarajevo, B&H¹
University "Džemal Bijedic", Mostar, B&H²

Introduction: Ulcerative colitis is a common disease with a chronic and relapsing presentation requiring regular clinical follow up. Epidemiological and microbiologic studies suggest that enteropathogenic microorganisms play a substantial role in the clinical presentation and extent of inflammatory bowel disease. **Aim/goal:** To evaluate the presence of intestinal infections by *Entamoeba histolytica* in patients with ulcerative colitis, their impact on clinical outcome, and to identify associated risk factors. **Material and methods:** A total of 31 patients hospitalized on Gastroenterohepatology Department with pathohistologically proved ulcerative colitis were studied. Fresh feces samples taken from 20 patients were examined immediately using Eosin and Lugol-staining methods and analyzing the presence of vegetative and MIFC (mertiolat and jod staining). **Results:** A total of 16 female and 15 male UC patients were analysed in a period of two years (2010-2011). The mean age at diagnosis was 43 years. We analyzed relation of amoeba infection with localization of ulcerative colitis. Our results indicate that amoeba infection is related to extent of disease (they were mostly present in pancolitis) . Presence of amoeba is not related to age nor gender. Furthermore, presence of amoeba was not associated with more severe clinical course of disease. Similarly, higher value of serum marker of inflammation was not associated with amoeba infection. **Discussion and conclusion:** Amoeba infections in UC patients treated at Gastroenterohepatology Department was not related to the grade of disease activity, and other clinical variables such as gender, age and parameters of inflammation. These microorganisms could be a contributing cause of extended localization of disease.

Key words: ulcerative colitis, *entamoeba histolytica*, inflammation.

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H1N1 Critically Ill Patients During the Pandemic and Post-pandemic Period in Clinic for infectious diseases, Sarajevo

Nermina Bajramovic¹, Refet Gojak¹, Selma Hasimbegovic- Ibrahimovic¹, Guillaume Thierry², Amer Iglica³, Kenana Aganovic³, Irma Sladic³, Ira Tancica³, Almedina Moro⁴
Clinic of Infectious Disease, Clinical Center University of Sarajevo, B&H¹

Intensive Care Unit, Bourg-en-Bresse Hospital, France²
Medical Intensive Care Unit, Clinical Center University of Sarajevo, B&H³
Department of Virology and molecular biology, Clinical Center University of Sarajevo, B&H⁴

SUMMARY

Introduction: In Bosnian and Herzegovina activity occurred two distinct waves of influenza during the two-year period. First during the pandemic year (2009/10) and a second wave in post-pandemic period from Jan. 2011. to Feb. 2011. We describe the clinical profiles of critically ill patients with severe complications due to microbiologically confirmed pandemic influenza A (H1N1) infection admitted to Unit of Internal Intensive care. **Material and methods:** We conducted a retrospective study of medical records of critically ill patients diagnosed with influenza and hospitalized to Unit of internal intensive care, Clinical centre University of Sarajevo, in period from November 2009 to February 2011. We analysed the data on age, sex, duration of the disease and hospitalisation in days, risk factors, comorbid conditions, complication, laboratory results, therapy and clinical outcomes using SPSS for Windows. Influenza A /H1N1 virus was detected by real-time RT-PCR assay. **Results:** From Nov. 2009 to Feb. 2010, 13 patients required ICU admission. In all (100%) patients the cause of ICU admission was acute respiratory failure. The majority of the patients required invasive mechanical ventilation. The mean age of the patients was 40 years, were male (61.5%). 9 out of 13 (69.2%) patients had chronic comorbid condition. 8 out of 13 (61.5%) patients had BMI > 30. On admission, mean APACHE II score was 15, SAPS II was 33 and SOFA was 6.7. Six out of 13 (46.1%) patients survived. In post-pandemic period, from Jan. 2011 to Feb. 2011, eight patients required ICU admission. In all (100%) patients the cause of ICU admission was acute respiratory failure. Patients during the post-pandemic period were older (mean 44.6 years), had more chronic comorbid conditions and presented with higher severity scores (APACHE II was 30.2). 5 out of 8 (62.5%) patients survived. **Conclusion:** Critical illness caused by influenza A (H1N1) affects young patients with little major comorbidity and had a high case-fatality rate. We identified higher BMI as a risk factor. Patients from the post-pandemic Influenza (H1N1) infection period presented as a more vulnerable population with more chronic comorbid conditions, in keeping with more typical seasonal viral infection.

Key words: Influenza A/ H1N1, critical illness, critical unit care, BMI, hypoxia, mortality.

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Clinical and Epidemiological Characteristics of Pandemic Influenza in Children in Season 2010/11

Planinka Muratovic, Velida Mulabdic, Belma Gazibera, Merdina Ferhatovic, Nermina Bajramovic
Clinic for Infectious Diseases, Clinical Center of Sarajevo University, Sarajevo, Bosnia and Herzegovina

SUMMARY

Introduction: Pandemic influenza is an acute respiratory disease caused by pandemic influenza virus A (H1N1)2009, which was first diagnosed in the spring of 2009. Aim/goal: The authors wanted to show clinical and epidemiological characteristics of pandemic influenza in children with proved A(H1N1)2009 virus hospitalized in the Clinic for Infectious Diseases, Clinical Centre of University of Sarajevo (KCUS) in the period from 1 January 2011 to 30 March 2011. **Material and methods:** The medical histories were analyzed of 16 hospitalized patients diagnosed with pandemic influenza based on clinical signs and confirmed by nasopharyngeal smear by the PCR method. **Results:** Some 298 patients under age 17, with the symptoms of influenza, were examined at the Clinic for Infectious Diseases, KCUS in the period from January to March 2011. 37 patients (12.41%) were hospitalized while in 16 of them (43.24%) virus pandemic influenza A(H1N1)2009 was proved in nasopharyngeal smear by the PCR method. Five patients (31.25%) had risk factors while complications were registered in 13 patients (81.25%). Pneumonia was the most common complication which was registered in 8/16 patients, i.e. in every second hospitalized patient with proved virus influenza A(H1N1)2009. **Discussion and conclusion:** Early detection of pandemic influenza is important for adequate and promptly treatment because the virus has the ability to cause complications in previously healthy children and young people.

Key words: pandemic influenza, clinical sign, risk factors, complications.

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Treatment of Former Intravenous Addicts with Chronic Hepatitis C -our Experiences

Merdina Ferhatovic, Sajma Dautovic-Krkic, Nermina Bajramovic, Nermin Mostarac, Refet Gojak, Amir Hadzic
Clinic for Infectious Diseases, Clinical Center of University of Sarajevo, Bosnia and Herzegovina

SUMMARY

Introduction: Hepatitis C is liver tissue inflammation caused by hepatitis C virus. In past decades hepatitis C has characteristics of silent epidemic. It is transmitted through blood by inoculation in majority.

Material and methods: Retrospective analysis of medical histories of patients who were former intravenous drug users treated at our Clinic from January 2005 until December 2011 was performed. We analyzed demographic data of patients and characteristics related to addiction, as well as clinical features and therapy results. Data were processed with SPSS for Windows. **Results:** During this seven years period we treated 15 former IDU (24% of overall hepatitis patients treated). Our treatment included pegylated interferon alpha2a and ribavirin. Average age of examinees is 29 years (25-34). Males dominated in the group with 86,7% (13 patients), females were represented with 13,3% (2 patients). Average length of previous drug use was 5 years (5-7 years). Genotype 1a is dominantly presented which is in accordance to data in current literature. Good therapeutically response was achieved at 73,3% patients. **Conclusion:** With good motivation, stabile abstinence, adherence to treatment protocols and family support it is possible to achieve good therapy response at high percentage within this risk group

Key words: treatment, HCV, intravenous drug users.

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Clostridium Difficile as Etiopatogen of Postantimicrobial Diarrhea

Fikret Pinjo, Snjezana Mehanic, Vesna Hadziosmanovic, Jasna Topalovic, Rusmir Baljic, Velida Mulabdic

Clinic for Infectious Diseases, Clinical Center of University of Sarajevo,

SUMMARY

Background: Clostridium difficile is a sporogen, anaerobic, gram-positive bacteria that is present in the gastrointestinal tract of children and adults. Toxicogenic Cl.difficile strains that produce toxin A and toxin B are the most common etiopathogen of digestive problems during or after antibiotic therapy. The clinical picture varies from asymptomatic forms of the disease to very severe forms of pseudo-membranous colitis with mortality 10-20%. Aim: To point significant increase in the number of patients with digestive problems caused by Clostridium difficile during or after antibiotic therapy. **Material and Methods:** We retrospectively analyzed medical records of 30 patients hospitalized at the Clinic for Infectious Diseases in Sarajevo for the period September 2011-March 2012. According to severity of clinical presentation, patients were divided into three groups: mild, moderate and severe clinical form of disease. Diagnostic procedures included the routine laboratory tests, microbiological analysis of stool, and in severe cases and colonoscopy with biopsy, and patohystology analysis. **Results:** From the total of 30 patients men were 73.6%, women 26.4% and aged between 34 - 83 years. Examination stools for C. difficile, confirmed the presence of toxin A and toxin B in 86% of patients. All patients were coincident with comorbidity. Before appearance of symptoms, antibiotic treatment in the hospital had 86.4%, and 13.6% were treated as outpatients. Mild form of disease had 18.2%, moderate 50% and 31.8% severe. Presented symptoms were diarrhea (2-10 stools per day) with fever in 59% of patients.

Stomach ache had 40.9% . Leukocytosis was reported in 81.8% of patients. The disease had a favorable clinical course in all patients with documented relapse of 13.6%. **Conclusion:** Postantimicrobial diarrhea caused by Clostridium difficile is a common complication during and after antibiotherapy. Clinical picture can vary from mild to severe. Reccurence occur in 10-20% of cases. Outcome depends on severity of clinical presentation, comorbidities, time set for diagnosis and appropriate treatment.

Key words: Clostridium difficile, diarrhea postantimicrobial, clinical features, comorbidity.

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Sensitivity and Specificity of Procalcitonin for Differentiation Between Bacterial and Viral Meningitis

M. Cvetanovska, Z. Milenkovic, V. Kirova-Uroshevikj, K.

Grozdanovski, I. Demiri, V. Cvetanovski

Clinic for infectious diseases and febrile conditions, Skopje,

Macedonia

General hospital-Remedica

SUMMARY

Introduction: Procalcitonin (PCT) is serum protein in acute phase of inflammation with high sensitivity and specificity for bacterial infection. Aim/goal: The aim of our study was to evaluate the sensitivity and specificity of PCT for differentiation between bacterial and viral meningitis. **Material and methods:** A total of 70 patients (35 with bacterial and 35 with viral meningitis) were included in this study.

Results: Male patients were dominant, with 60% in the first group and 68,5% in the second group. The average age was 15,5±18,30 in the first group, and 15,77±6,4356 in the second group. The average level of PCT on admission, in the patients with bacterial meningitis was 16,78 ng/ml vs 0,38ng/ml in the patients with viral meningitis. The patients with bacterial meningitis on admission had higher values of PCT comparing with the patients with viral meningitis, which is statisticly significant (p<0.005). The sensitivity of PCT was 100% and specificity was 81,2% at cutt-off value of 4,91 ng/ml. **Discussion and conclusion:** PCT is an important marker with high sensitivity and specificity for the early diagnostic and differentiation between bacterial and viral meningitis.

Key words: bacterial meningitis, viral meningitis, procalcitonin.

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Sexually Transmitted Oncogenic Viral Infections: Infection with Human Papillomavirus

J. Andonovska¹, V. Kirova-Urosevikj¹, S. Panov², E. Nikolaova³, S. Jovceviski³,

University clinic of Infectious diseases and febrile conditions, Skopje, Macedonia¹

Institute of Biology, Faculty of Natural Sciences, Skopje, Macedonia²

University clinic of gynecology and obstetrics, Skopje, Macedonia³

SUMMARY

There is a consensus that the persistent infection with a high-risk HPV genotype leads to the integration of the HPV-DNA within the chromosomal DNA of the infected cell, and is frequently found in the cervical cancer lesions, while it is absent in the lower lesion grades. This event leads to continual expression of the HPV-oncogenes, involved in the cellular transformation and immortalization of the infected cell, leading to malignant progression. The method of fluorescent in situ hybridization (FISH), as a molecular virologic method, shows the physical status of the viral DNA within the cell (integrated or episomal). The first part of this study is a retrospective analysis of the data of 7411 patients, which reveals the association of the infection with HPV with different lesion grades, statistically confirming the previously mentioned effects of the persistent HPV infections. The second part is the experimental proof of the hypothesis that HPV integration is necessary for the malignant progression of the lesion. Using the FISH method, optimized upon HeLa cells, we analyzed the cryosections of 45 bioptic tissues of suspected cervical lesions. Integration was shown in 7 of 10 cases of CIN3/CIS lesions. The signal strength that correlates with HPV replication and transcription of the viral genome was greatest in the chronic viral cervical lesions, as well as the flat condylomas (episomal form). The obtained results correspond to the results of the other studies in this field.

Key words: infection, cervical lesions, oncogenes, fluorescent in situ hybridization, high-risk HPV, cryosections, bioptic tissue.

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Meningitis in Children and Progredient Hearing Loss

Karsten Plotz¹, Henrik Achenbach²

Department of Technology and Human Health TGM, Institute for Audiology and Hearing Technology, Jade-University of Applied Sciences, Oldenburg, Germany¹

Institute of Neuro-Radiology, Evangelical Hospital Oldenburg, Germany²

SUMMARY

Introduction: Hearing loss in children has an incidence of about 1/1000 to 6/1.000 healthy newborn babies. The rate depends on the health system. Roughly 2/3 of the hard hearing is caused by genetic reasons, the remaining 1/3 is so called acquired in the perinatal phase of birth, mainly by meningitis (18%). Meningitis needs treatment with intensive care units, high potential antibiotic drugs, like aminoglycosides. The ototoxic effect to the labyrinth organ and the cochlea is partially by the meningitic inflammation of the temporal bone, the meninges and on the other hand due to pharmaceutical impact to the sensory epithelium, the tip links or causes ossification in the cochlea and/or vestibular organ. In cochlear implantees under the age of 2, there is about 20% post-meningitis deafness. **Aim/goal:** In many cases we see progredient hearing losses after meningitis. Hearing loss starts in some cases after a couple of weeks to 6-9 months. High resolution CT- and MRI scans will be shown with ossification in the semicircular canals and/or parts of the cochlea organ. We also present the audiological data with audiometry and electrophysiological data from brainstem evoked potentials (BERA). **Discussion and conclusion:** It should be necessary to start a post-meningitic hearing screening in every child. The ossification starts during the first weeks after meningitis, so follow-up with high resolution CT-scan and audiometric controls are necessary for an in-time implantation of cochlear implants to avoid insufficient intracochlear placement of the electrode array with reduced insertion depth and reduced speech development.

Key words: meningitis, hearing loss, implantation, newborn hearing

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Cochlear Implantation After Bacterial Meningitis: Possible Benefits for Patients

Izet Baljic¹, Peter Voigt², Ute Feuer², Claudia Voigt¹, Katrin Hoffmann^{1,2}, Rusmir Baljic³, Dirk Eßer¹

Clinic for Otorhinolaryngology and Plastic Surgery of the HELIOS Klinikum Erfurt, Erfurt, Germany¹

Cochlear Implant Centre Thüringen, Erfurt, Germany²

Clinic For Infectious Diseases, Clinical Center University Sarajevo, Bosnia and Herzegovina³

SUMMARY

Introduction: For adults with severe or profound hearing loss, as a result of bacterial meningitis, who had no benefit with even strongest hearing aids, cochlear implant remains as only efficient technical supply. In the patients with form of meningitis, which lead to the co-

hearing obliteration, this type of hearing devices is essential, particularly in young children. **Aim/goal:** The aim of this study was to analyse speech discrimination of these patients. **Material and methods:** In a period 1998.-2011. we supplied with cochlear implant 18 patients who had meningitis. The auditory habilitation and rehabilitation was conducted in Cochlear Implant Centre Thüringen, Erfurt. We analysed: age of patients, time between meningitis and implantation, results of speech audiometry and correlation between duration of deafness to speech discrimination. **Results:** We had 10 males and eight females. Mean age for first implantation was 37.1 (6 patients was supplied with two implants). Mean time between meningitis and first implant was 15.1 years. We found 39% patients with open-set speech discrimination and 50% speech discrimination with eye-contact. Only 2 (11 %) had no speech discrimination. **Discussion and conclusion:** Most of patients who were supplied with cochlear implants after meningitis use it very efficiency for everyday communication. Almost half of them have open-set speech discrimination. Duration of deafness have no direct influence to speech discrimination, in case when deafness after acquisition of speech to begin. Also, when patients consistently used hearing aids before cochlear implant, and there has been no significant cochlear obliteration.

Key words: cochlear implant, postmeningitic deafness, speech discrimination.

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Osteomyelitis and Spondylodiscitis

Resat Ozaras

Istanbul University, Cerrahpasa Medical School, Istanbul, Turkey

SUMMARY

Introduction: Osteomyelitis, the infection of bone can occur as a result of hematogenous or contiguous spread, or direct inoculation. Hematogenous osteomyelitis is primarily a disease of children. **Aim/goal:** To describe the clinical features of osteomyelitis in adults.

Material and methods: We reviewed the current literature and presented our experience. **Results:** Osteomyelitis can be classified based on the duration of illness (acute versus chronic) and the mechanism of infection (hematogenous or secondary to a contiguous focus). Hematogenous osteomyelitis occurs more commonly in children than adults and is usually monomicrobial, while contiguous osteomyelitis may be polymicrobial or monomicrobial. Staphylococci and aerobic gram-negative bacilli are the most common organisms. Spondylodiscitis is the inflammation of the intervertebral disk and adjacent vertebrae. It is either tuberculous or nontuberculous. The majority of patients are elderly and signs and symptoms may be nonspecific. The lumbar vertebrae are most often involved. Tuberculosis and brucella are common in endemic countries. The diagnosis generally depends on the culture of biopsy specimen. MRI has high sensitivity and specificity. **Discussion and conclusion:** We have diagnosed 100 patients: 44 had pyogenic, 24 brucellar, and 32 tuberculous spondylodiscitis. Fifty-nine were men and 41 women. The mean age was 55 years.

Within pyogenic group, a microbiological diagnosis was established in 18 patients and 10 were MSSA. Spondylodiscitis affects mainly patients of advanced age and male gender. The etiology may vary according to geographical areas. Although brucella and TB are endemic in our country, pyogenic spondylodiscitis was more frequent.

Key words: Osteomyelitis, Spondylodiscitis, Brucellosis, Tuberculosis.

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Clostridium Difficile Infection in World

Sead Ahmetagic

Department of infectious diseases, University clinical center Tuzla, Bosnia and Herzegovina

SUMMARY

Introduction: Clostridium difficile is the most common cause of health care-associated diarrhea, and the prevalence and severity of Clostridium difficile infection (CDI) are increasing in world. **Aim/goal:** Little is known the extent of Clostridium difficile infection in Bosnia and Hercegovina. Our aim was to obtain a more complete overview of CDI om World Europe and Bosnia and Hercegovina and build capacity for diagnosis, clinical and epidemiological characteristics, treatment and surveillance. **Material and methods:** The recommendations are based on the best available evidence and practices, as determined by a joint Expert Panel appointed by SHEA and the Infectious Diseases Society of America (IDSA) (the SHEA-IDSA Expert Panel) and to the European Society of Clinical Microbiology and Infectious Diseases (ESCMID) treatment guidance for CDI. **Results:** The incidence and severity of CDI around the world has increased over the past 20 years due to emergence of hypervirulent strains, increased use and misuse of antibiotics, and the increase of susceptible at-risk populations. Treatments currently available for CDI area inadequate to impede the increasing spread and virulence of the infection, avoid recurrence in chronic patients or prevent infection in at.risk populations. **Discussion and conclusion:** The review to summarize the most recent evidence available on the epidemiology, risk factors and treatment of CDI.

Key words: Clostridium difficile infection, epidemiology, diagnosis, treatment, surveillance.

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Current Approach to Infection Control in Intensive Care Units: Bundle Implementation

Salih Hosoglu

Dicle University Hospital, Diyarbakir, Turkey

SUMMARY

Prevention of infection is significant to providing a high standard of care in the intensive care unit (ICU). Current approach on prevention of health care-associated infections (HAIs) has several care bundle implementations. Implementation and follow-up of these bundle implementations are necessity to success of the intervention. The bundle compliance is critical and monitoring of compliance should be performed. In ICU, many researchers suggested implementation of care bundles for prevention of major device-related infections [i.e. ventilator-associated pneumonia (VAP), catheter-associated urinary tract infections (CAUTI) and central line-associated blood-stream infections (CLABSI)]. Most of care bundle approaches based on some measures that implemented after a short time baseline period, and bundle compliance, the device-related infections rates, intensive-care unit length of stay and duration of device utilization. The most common elements of ventilator care bundle are "hand hygiene, elevation of the head of the bed (>30° or 45°), daily sedative interruption and assessment of readiness to extubate, venous thromboembolism prophylaxis and peptic ulcer prophylaxis". Central line bundle may include "daily review of line necessity and quick removal, hand hygiene, optimal catheter site selection, maximum barrier precautions, and chlorhexidine skin antisepsis". On the other hand the urinary tract catheter bundle may include "hand hygiene, assessment of necessity of the catheter, inform the patient about minimize the infection risks and confirmation of urinary catheter bag emptied regularly". Care bundle implementations are accepted one of the best approaches to reduce device-related infections in ICU.

Key words: care bundles, ICU, elements, hand hygiene.

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Sepsis and Endocarditis – a Cumulative Threat!

Bruno Barsic

Hospital for Infectious Diseases, School of Medicine, Zagreb, Croatia

SUMMARY

Introduction: Sepsis is still a major threat among patients suffering of severe infections. Beside an inflammation of particular organ, severe inflammatory response induces multiorgan dysfunction increasing substantially overall mortality. **Aim/goal:** Estimating organ dysfunctions in septic patients is one of four crucial steps in evaluation and treatment of septic patients following a PIRO concept of sepsis (P-predisposition, I- infection. R-response, O-organ dysfunction). **Material and methods:** 300 patients with IE **Results:** Several pathogens, potent inductors of severe sepsis like *S. aureus* or *Enterococcus* are also prone to cause endocarditis, even in patients with previously unknown valvular disease. Therefore, in patients with blood stream infections caused with these pathogens, an active search for infective endocarditis is mandatory. If diagnose is established new threats for poor outcome accumulates – beside risk factors attributive to sepsis, factors specifically associated with IE are added (congestive heart failure, valve perforation, stroke, myocardial abscess). **Discussion and conclusion:** Despite control of severe sepsis is hardly established in patients with IE, this should not preclude valve replacement if the above complications are present.

Key words: Sepsis, *S. Aureus*, *Enterococcus*, infective endocarditis.

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Snakebites—an Overview of the Treatment, Experience by the Mostar

Ivo Curic, Ulmihana Baksic-Pasic, Helien Bebek-Ivankovic, Sanja Sanje-Kukic, Jadranka Nikolic, Vesna Antunovic-Skelo, Sveltana Grgic, Jurica Arapovic, Sinisa Skocibhusic

Clinic of Infectious Diseases, University Clinical Hospital Mostar, Mostar, Bosnia and Herzegovina

SUMMARY

Introduction: Viper snake bite is an urgent medical condition that requires urgent procedures. The region of Herzegovina is prone to snake bites due to Mediterranean climate and natural terrain which provides optimal environment for snakes. Two venomous snake species were described in the region, including frequent hump-nose viper (*Vipera ammodytes*), which can emit up to 20 mg of venom, a quantity that can be lethal for humans. Despite obvious importance, treatment scheme remains inconclusive and even controversial. **Aim:** To determine incidence and main characteristics of envenomed patients and suggest a common treatment approach. **Results:** We

investigated a period of 28 years (from 1983 to 2011). There were a total of 397 patients admitted to the Clinic for Infectious Diseases Disease in Mostar. We did not detect any gender-related difference in the occurrence (209; 51% were men; $P=0.326$). The incidence of snake bites in the years ranged from 1.4 to 5.8 per 10,000 population. The bites were most frequent in warm months (June and August; 178, 45%). Most frequent clinical presentation was moderate (80%), with a single lethal outcome in the observed period. Majority of patients were admitted and received hospital treatment spanning between 7 and 10 days (75%). **Conclusion:** Envenomation is an important medical and therapeutic problem, especially in conditions of lacking common guidelines and unified approach.

Key words: snakebite, antidotes, hump nose viper, vipera

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Permanent Unilateral Hearing Loss as a Complication of Mumps Infection - Case Study

Ednan Drljevic¹, Dzenan Hodzic², Eldira Hadzic¹

Department of Infectious Diseases, Cantonal Hospital Zenica, Bosnia and Herzegovina¹

Department of Otorhinolaryngology, Cantonal Hospital, Bosnia and Herzegovina²

SUMMARY

During period from 5th Oct 2010 and Apr 2012 we have been treating 1872 patients suffering from complications of MUMPS infection. The patients all came from the territory gravitating to the Department of Infectious Diseases of Cantonal Hospital Zenica. Permanent hearing loss caused by MUMPS infection is one of most difficult complications of this disease. There had been registered 5 cases of unilateral hearing loss during the epidemics, and these cases had been treated on the Department of Infectious Diseases and Department of Otorhinolaryngology of our Hospital. The case demonstrated is the one of sensorineural hearing loss during MUMPS infection. The diagnosis of MUMPS was set based on clinical and laboratory findings, and the anacusis was diagnosed by audiogram and caloric testing of n. Vestibularis (Fitzgerald-Hallpike). Although the hearing loss was diagnosed in time, it remained permanent. The epidemic transited in endem y on the territory that gravitates to our Hospital, and that obliges us to test all sudden hearing loss in younger patients to ELISA/IgM and IgG on mumps virus. Immunization remains the only way of preventing the disease.

Key words: mumps, anacusis, complications.

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Skin and Soft Tissue Infection (SSTI): New Possibilities of the Treatment

Jasmina Begic, Faruk Alendar

Dermatovenerology Clinic, Clinical Center, University

Sarajevo, Bosnia and Herzegovina

SUMMARY

Introduction: The incidence of the skin and soft tissue infection (SSTI) has increased due to the ageing of the general population, the increased number of critically ill patients, the increased number of immunocompromised patients (HIV infection, cancer, immunosuppressive therapy) and recent emergence of multi-drug resistant pathogens. Normal skin is heavily colonized by bacterial flora. Normal flora of skin is classified on the resident flora, transient flora and transient or temporary residents. The infection may arise as primary infections in minor superficial breaks in the skin or as secondary infections of preexisting dermatosis. Carriers of *S.aureus* and *GAS* are at increased risk for pyodermas and skin and soft tissue infection (SSTI). **Aim:** Aim is to present new possibilities of the treatment patients with skin and soft tissue infections (SSTI). **Methods:** Three contemporary problems conforming the clinical evaluation of patients with skin infection are diagnosis, severity of infections and pathogen-specific antibiotic resistance. In the six months we made at patients with inflammatory dermatoses, bullous disease, ulcers, dermatophytosis and bites, microbiological tests, microbiological swab and the culture techniques, the amount leucocytes in the complete blood count, CRP and local clinical symptoms of infections (induration, erythema, warmth and pain). **Results:** during the six months most frequently isolated bacteria were *S.aureus*, *Pseudomonas aeruginosa*, MRSA (in the nose at the skin). At the patients with SSTI accompanied by signs and symptoms of systemic toxicity we saw at the patients with bullous disease and the patients with immunosuppressive therapy, and they treated with systemic, topic and supplementary therapy. Patients without these symptoms were treated with topic and supplementary therapy. Like supplementary therapy we used Biopton polarized light (480-3400nm). **Conclusion:** In the case of skin and soft tissue infections (SSTI) we treated patients with systemic, topic and Biopton polarized light (480-3400nm) and we reduce infection, reduce time of hospitalization and antibiotic therapy.

Key words: soft tissue infection, MRSA.

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Infective Complications in Patients with Kidney Allograft

Senija Rasic¹, Jasminka Dzemic¹, Damir Rebic¹, Edina Hasanagic¹, Vedad Herenda¹, Refet Gojak²

Nephrology Clinic, Clinical Center University of Sarajevo, Bosnia and Herzegovina¹

Clinic for infective diseases, Clinical Center University of Sarajevo, Bosnia and Herzegovina²

SUMMARY

Introduction: Concomitant use of immunosuppressive therapy in immunocompromised uremic patients makes transplanted patients prone to different infections. Aim/goal: To analyse infective complications in kidney transplant patients treated on Nephrology Clinic in period 2007-2012. **Material and methods:** Retrospective data analysis of all patients with renal transplant, included type and infective agents, time when infection started and endpoint of treatment.

Results: Infective complications were found in 25 kidney transplant patients (male 44%, female 56%). Bacterial infections were found in 33.3 % cases (the most common agents was *Escherichia coli*). Viral infections were noted in 27.2% patients (the most common agents Cytomegalovirus), and zoonosis in 5 cases (in two cases Malaria falciparum). Average time from transplantation to first manifestation of infection was 38.04 ± 7.41 months. The most common complications of infectious diseases at kidney transplanted patients were acute renal injury (8 patients), nephrotic syndrome (1 patient) and de novo diabetes mellitus (1 patient). In one case patient died due to sepsis, and 5 patients developed chronic kidney disease. Average time of graft survival with infective complication was 84 months (49-118).

Discussion and conclusion: Infective complications are one of the most common reason for hospitalization of kidney transplanted patients and have important influence on graft survival.

Key words: kidney transplantation, infections.

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Urosepsis After Tibia Surgery – Case Report

Adnana Talic-Tanovic¹, Faruk Lazovic¹, Dzelaludin Junuzovic², Meliha Hadzovic Cengic³

Clinic of Orthopedics and Traumatology, Clinical Center University of Sarajevo, Bosnia and Herzegovina¹

Urology Clinic, Clinical Center University of Sarajevo, Bosnia and Herzegovina² Clinic of Infective diseases, Clinical Center University of Sarajevo, Bosnia and Herzegovina³

SUMMARY

A 45 years old patient was admitted to hospital as an emergency case because of the lower leg fracture. Clinical and radiographic signs of fracture of both bones of the lower leg with dislocation, indicating an urgent surgery. After preoperative preparation immediately upon hospitalization was made an emergency osteosynthesis surgery of the tibia with plate and screws. Preoperatively was placed a catheter. Control X-ray showed correct position of the fragments. After surgery

drain ex. Patient was mobile the next day with crutches without relying on the operated leg and with the help of a therapist. Third postoperative day the catheter was removed. Fourth day was noticed worsening of general condition. Highly febrile with general difficulty while urinating. A complete laboratory tests were performed. During consultative visit specialist in infectious disease prescribed therapy and urologist placed a catheter. Blood culture: isolated *Pseudomonas aeruginosa*, the same bacteria found in urine. CRP was 248, PSA 12.19, ECHO of the urinary tract show microlithiasis and enlarged prostate gland. Response to therapy was improvement, without fever, remained catheter. Shin wound was properly repaired and stitches removed. Discharged with the recommendations: walk with crutches without relying on the operated leg with the control and treatment by urologist. Four weeks after discharge applied therapy by the urologist. Two months after the surgery walking with full reliance on the operated leg, laboratory findings within the normal range.

In conclusion, we emphasize the importance of mobilization of the patient and removing the catheter postoperatively as soon as possible. It is evident that teamwork in the treatment of uro sepsis as a complication has the best outcome for both the patients and physicians.

Key words: fractured tibia, urosepsis.

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Hemorrhagic Fever with Renal Syndrome: Clinical Presentation

Ilija Kuzman

School of Medicine University of Zagreb; University Hospital for Infectious Diseases “Dr Fran Mihaljevic”, Zagreb, Croatia

SUMMARY

Hemorrhagic fever with renal syndrome (HFRS) is a natural focus zoonosis with sudden onset, characterized by high fever and other general symptoms, renal insufficiency and hemorrhages. Introduction: In South-eastern Europe, HFRS is caused by two types of hantaviruses, more commonly Puumala (PUU), and less frequently Dobrava (DOB). PUU virus causes a milder form of disease. Aim/goal: To present disease severity, clinical and laboratory characteristics and epidemiological data in patients with HFRS in Croatia. Material and methods: A retrospective analysis of clinical and laboratory characteristics in patients with HFRS hospitalized at the University Hospital for Infectious Diseases in Zagreb in three registered outbreaks and in the periods between the outbreaks. **Results:** HFRS begins abruptly, with high fever, myalgias, especially in the lumbar region, and abdominal pain. Severe headaches, malaise and nausea are also characteristic, accompanied often with vomiting or diarrhea and respiratory symptoms. In Croatia, a milder form of disease caused by PUU virus is more frequent, and the course of disease usually includes two stages. The first stage is the febrile stage, followed by the second

stage with renal symptoms, while hemorrhagic manifestations are rare and mild. Oliguric stage is recorded in half of the patients, and polyuric in two thirds. The mortality rate is less than 1%.

Discussion and conclusion: The disease occurs regularly in Croatia. When sporadic, only patients with typical clinical manifestation are encountered, while in epidemic years we also record patients with mild forms of disease. Thrombocytopenia is a highly indicative laboratory marker of disease.

Key words: Hemorrhagic fever with renal syndrome, hantaviruses, Croatia, outbreak.

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Analysis of Patients with CNS Manifestations of Mumps Infections in the Clinic for Infectious Diseases in Sarajevo During the Epidemic Period from 01.01.2011. to 01.03.2012.

Nermin Mostarac, Belma Gazibera, Rusmir Baljic, Alma Sejtarija-Memisevic

Clinic for infectious diseases, Clinical Center University of Sarajevo, Bosnia and Herzegovina

SUMMARY

Introduction: Mumps, caused by a paramyxovirus, is generally a mild disease with fever, headache and swelling of the salivary glands, but complications such as meningitis (up to 15% of cases), encephalitis or orchitis may occur. **Aim/goal:** To determine rate of CNS manifestation as a complication of mumps infection. **Material and Methods:** We analyzed 51 case with CNS manifestations of mumps infections out of 420 hospitalized patients with epidemic parotitis infection. Study is performed at the Clinic for infectious diseases in Sarajevo, for the period of 01.01.2011 to 01.03.2012. **Results:** Among studied patients 16 were females and 35 males with ratio 1:2,2. All patients had meningitis, with no signs of encephalitis. Presented meningitis had five men (14%) as a primary event, with no signs of orchitis. The dominant symptoms were high fever, headache, vomiting, adynamia. CSF findings showed moderate pleocytosis (mean 192.5 cells) and proteinorrhachia (0,34 to 177), glucose in CSF were normal or slightly reduced. Abnormal EEG had five patients (10%). One patient underwent CT scan and it was normal. All patients had benign disease course. **Conclusion:** Mumps meningitis as a complication of mumps infection may occur in significant percent. Case fatality is low, but permanent sequelae after meningitis occur in about 25%. Males aged 16-21 years are at highest risk for developing this infection.

Key words: mumps, epidemic, meningitis

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Treatment of VRE Meningitis in a Four-month - Old Infant with Intraventricular Tobramycin Application

Ibrahim Omerhodzic¹, Hajra Maksic², Meliha Cengic-Hadzovic³, Edin Avdagic⁴, Bilal Imsirovic⁵, Salko Zahirovic¹, Hassan Al Goud¹, Emina Selimovic¹, Nada Koluder-Cimic³

Department of Neurosurgery¹, Pediatric Clinic², Department of Infectious Diseases³, Department of Radiology, Clinical Center University of Sarajevo, Bosnia and Herzegovina⁴

Department of Radiology, Cantonal Hospital Zenica, B&H⁵

SUMMARY

Meningitis caused by intrahospital multiresistant strains of bacteria is a rare but very serious complication associated with unpredictable outcomes. The situation is further complicated when it affects small children. Treatment of such cases is complex and it absolutely requires a team approach of neurosurgeons, pediatricians, infectious disease specialists and radiologists. This paper presents an exceptional case of treatment of meningitis caused by Vancomycin Resistant Enterococcus (VRE) in a four-month-old infant. The patient was previously treated by neurosurgical placement of catheters for external CSF drainage due to intraventricular hemorrhage and hydrocephalus subsequently developed. After an unsuccessful application of parenteral antibiotics according to the antibiogram due to the poor penetration into the CNS, the patient was cured by an effective combination of intravenous application of Linezolid and intrathecal placement of Tobramycin (with a once-daily dose, 10 mg/day during 7 days), with no evident side effects. According to the available literature, this is the first such case in the world.

Key words: meningitis, vancomycin-resistant enterococcus, VRE, intrathecal drug applications, tobramycin, linezolid, infant, neurosurgery

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Phenotypic Methods for Detection of Methicillin - Resistant Staphylococcus Aureus

Velma Rebic¹, Sabaheta Bektas², Mufida Aljicevic¹, Edina Beslagic¹, Velida Mulabdic³, Sadeta Hamzic¹

Institute for Microbiology, Faculty of Medicine, University of Sarajevo, Sarajevo, Bosnia and Herzegovina¹

Institute for Public Health of Sarajevo Canton, Bosnia and Herzegovina²; Clinic for Infectious Diseases, Clinical Centre of Sarajevo University, Bosnia and Herzegovina³

SUMMARY

Introduction: Methicillin-resistant *Staphylococcus aureus* (MRSA) is responsible for nosocomial infections. Recently MRSA has emerged as an important cause of community-associated infections. Rapid and accurate detection of MRSA is of extreme importance for the infection control measures and therapeutic strategies. **Aim/goal:** The aim of this study was to evaluate the sensitivity and specificity of phenotypic methods used for the detection of methicillin resistance in *Staphylococcus aureus*. **Materials and Methods:** 175 clinical isolates of *Staphylococcus aureus* collected in Laboratory of Institute for Public Health of Sarajevo Canton were tested for methicillin resistance in the period from August to November 2011. The following methods were used: oxacillin disc diffusion (DD) test, ceftiofloxacin DD test, E-test MIC, ChromID MRSA test and PBP2a latex agglutination test. **Results:** Among 175 clinical isolates of *Staphylococcus aureus* tested by latex agglutination test, MRSA was detected in 157 isolates (89.7%). All tests showed sensitivity of 100%, while specificity of oxacillin DD test and ceftiofloxacin DD test was 88.89%, ChromID and E-test 94.4%. There was no significant difference between evaluated tests concerning specificity and sensitivity. ChromID test and E-test had the same and better specificity compared to the ceftiofloxacin DD and oxacillin DD test. **Discussion and conclusion:** All phenotypic methods had high sensitivity and specificity for MRSA detection. Latex agglutination PBP2a test is most reliable and presents confirmatory test for MRSA strains.

Key words: *Staphylococcus aureus*, test, specificity, sensitivity.

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Periprosthetic Joint Infection

Ismet Gavrankapetanovic, Faruk Lazovic
Clinic for Orthopedic and Traumatology, Clinical Center University of Sarajevo, Bosnia and Herzegovina

SUMMARY

Periprosthetic joint infection is now the most challenging and frequent complication occurring after lower extremity total joint arthroplasty. One factor in the past that contributed to delayed and inconsistent diagnosis of periprosthetic joint infection was the lack of standard definition. Definite diagnosis of periprosthetic joint infection can be made when a sinus tract is communicating with the prosthesis or when a pathogen is isolated by culture from two separate tissue or fluid samples obtained from the affected prosthetic joint or when four of the criteria following six criteria exist. Diagnostic methods are microbiologic testing, serum tests, synovial tests, histology and radiography. Therapy of periprosthetic joint infection are surgical

and antimicrobial therapy. Two-stage exchange procedure is the first option of surgical therapy. Preoperative antimicrobial prophylaxis is necessary to prevent periprosthetic joint infection. Antimicrobial therapy should be coherent with the chosen surgical strategy.

Key words: Periprosthetic joint infection, definition, diagnostics, treatment

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Tuberculous Spondylodiscitis Primarily Diagnosed as Posttraumatic Lesion

Bilal Imsirovic¹, Rusmir Baljic², Bekir Karcic¹, Alma Efendic¹, Ibrahim Omerhodzic³
Department of radiology, Cantonal Hospital Zenica, Zenica, BiH¹ Clinic for infectious diseases, Clinical Center University of Sarajevo, BiH², Clinic for neurosurgery, Clinical Center University of Sarajevo, BiH³

SUMMARY

Introduction: Tuberculosis of the spine (spondylodiscitis tuberculosa) is the most common disease of young people; however, the disease is still encountered in the people of different ages, immunodeficient patients being usually affected. **Case report:** This paper presents the case of a patient who was, due to the problems with walking, numbness in the legs, problems with urination, with a two-year long history of trauma, and positive X-ray showing the Th X and Th XI vertebral fractures, primarily characterized as a posttraumatic lesion case. **Conclusion:** Subsequent imaging processing, which included a multislice CT scan (MSCT) and Magnetic Resonance Imaging (MRI), aroused suspicion of a specific spondylodiscitis. Further pulmonary diagnosis and treatment confirmed miliary tuberculosis.

Key words: spondylodiscitis, tuberculosis, MSCT, MRI

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