



13th International Conference on

Laboratory Medicine & Pathology

June 25-26, 2018 | Berlin, Germany

Posters

Laboratory Medicine 2018

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Laboratory Medicine & Pathology

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Case Report: Erosive Discharging Maxillary Cyst

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Nasopalatine duct cyst is the most common intraosseous, non-odontogenic cyst of jaw, occurring in 1% of the population. They are present exclusively in maxilla, located in anterior midline of hard palate and hence are also referred to as "Median anterior cyst". It can occur at any age but is most frequently seen in patients aged 30 to 50 years, although cases in pediatric patients up-to 8 years of age have been reported. Here, we report a case of nasopalatine duct cyst in a 40 year old patient.

Biography

Junaid Azmat has completed his MBBS from Faisalabad Medical University. He is currently working as a fourth year resident in Histopathology at Chughtais Lab Lahore; the largest private lab in Pakistan. This case report was written under supervision of Dr. Saira Rathore, who is currently working as a Consultant Histopathologist at Chughtais Lab Lahore. She is also the Head of Pathology department at Central Park Medical College, Lahore.

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***In vivo* CFTR function by imaged ratiometric measurement of beta adrenergic/cholinergic sweat rate in human sweat glands**

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Sweat secretion rates were given by changes of volume of sweat drops secreted on the forearm in an oil layer, including the presence of a water-soluble blue dye (eriolglaucine disodium crystals). We computed a ratio between CFTR-dependent, evoked by intradermal microinjection of a β -adrenergic cocktail (C-sweat), and CFTR-independent, induced by methacoline as cholinergic stimulus (M-sweat), sweat secretion rates by multiple individual glands. The analysis was performed in 22 CF patients, 22 non-CF subjects (CTR), 22 healthy carriers (HTZ) and 3 clinical cases. Sweat secretion rates were given by changes of volume of sweat drops secreted on the forearm in an oil layer, including the presence of a water-soluble blue dye (eriolglaucine disodium crystals). We computed a ratio between CFTR-dependent, evoked by intradermal microinjection of a β -adrenergic cocktail (C-sweat), and CFTR-independent, induced by methacoline as cholinergic stimulus (M-sweat), sweat secretion rates by multiple individual glands. The analysis was performed in 22 CF patients, 22 non-CF subjects (CTR), 22 healthy carriers (HTZ) and 3 clinical cases. We obtained an approximately linear readout of CFTR function: the carriers mean ratio was 0.51 the value of non-CF controls while the average ratio of CF subjects was around zero. In a patient affected by CFTR related disorder we found a value in between CF and HTZ mean values. All groups were clearly discriminated with extremely significant differences of C-sweat/M-sweat ratios ($p < 0.0001$ for three groups comparison). This method discriminates between CF and non-CF patients (non-CF controls and heterozygotes), providing sensibility and specificity of 100%. It discriminates between heterozygotes and non-CF controls, providing sensibility 82% of specificity of 86%. We obtained reproducible discrimination when different operators performed the test. A software was developed for detecting sweat bubbles, paving the way for automatically mapping and measuring sweat bubbles as required for automated image analysis. This bioassay is capable to clearly discriminate among non CF, healthy carriers and CF individuals at variance with Gibson and Cooke gold standard sweat chloride assay, is minimally invasive and thanks to its exquisite sensitivity and specificity appears suitable for multicentre studies focusing on CFTR targeted therapies and to assist in the diagnosis of controversial cases. This approach can simplify the analysis and thus promote a better understanding of the functional relevance of rare CFTR mutations.

Biography

Paola Melotti is currently working Cystic Fibrosis Center of Verona, Italy. Paola Melotti has done progressive work on "*In vivo* CFTR function by imaged ratiometric measurement of beta adrenergic/cholinergic sweat rate in human sweat glands" at University of Verona, Department of Pathology and Diagnostics.

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The Periplasmic Chaperone Network Of *Campylobacter Jejuni*: Evidence That SalC (Cj1289) and PpiD (Cj0694) Are Involved In Maintaining Outer Membrane Integrity

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The outer membrane (OM) of Gram-negative pathogenic bacteria is a key structure in host-pathogen interactions that contains a plethora of proteins, performing a range of functions including adhesion, nutrient uptake, and antimicrobial resistance. The OM of the food-borne pathogen *Campylobacter jejuni* contains crucial proteins that do this function, and must be specifically localized to this membrane, but the sorting mechanisms involved are only partially understood. In particular, chaperones are required to ferry OM proteins across the periplasm after they emerge from the Sec translocation system. In this work, we have constructed a set of isogenic deletion mutants in genes encoding both known and predicted chaperones (cj0596, cj0694, cj1069, cj1228c, and cj1289) using NCTC 11168H as the parental strain. These mutants were characterized using a range of assays to determine effects on growth, agglutination, biofilm formation, membrane permeability and hydrophobicity. We focused on Cj1289 and Cj0694, which our previous work suggested possessed both chaperone and peptidyl-prolyl cis/trans isomerase (PPIase) domains. Mutants in either cj1289 or cj0694 showed growth defects, increased motility, agglutination and biofilm formation and severe OM permeability defects. 2D-gel comparisons showed a general decrease in OM proteins in these mutants. We heterologously overproduced and purified Cj0694 and obtained evidence that this protein was an active PPIase, as it accelerates the refolding rate of reduced and alkylated ribonuclease T1 and that it also possessed holdase-type chaperone activity. Cj0694 is most similar to the PpiD class of chaperones but is unusual in possessing PPIase activity. Our data show that Cj1289 (SalC; SurA-like chaperone) and Cj0694 (PpiD) are key proteins involved in OM biogenesis and integrity in *C. jejuni*.

Biography

Shadi A Zakai has completed his PhD from the University of Sheffield, UK. He currently works in the Department of Medical Microbiology and Parasitology, Faculty of Medicine, King Abdulaziz University, Kingdom of Saudi Arabia. He has published 4 papers in reputed journals and has been serving as an Editorial Board Member of reputed journals. His research interest include: clinical microbiology, molecular biology, bacterial resistance to antimicrobial agents, and infection prevention and control.

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IgG₄ deficiency with gene deletion in down syndrome

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Background & Aim: IgG₄ deficiency is more frequent among persons with Down syndrome (DS), without identifying explanation. The role of IgG₄ deficiency which is not fully established for many affected persons in the general population are asymptomatic. Nevertheless, in the context of DS it may be an important factor in repeated infections and even stroke. The aim of the present study was to investigate the molecular mechanism of IgG₄ deficiency at the level of the heavy chain gene (IGHG4) gene.

Methodology: Quantitative real-time polymerase chain reaction (Q-PCR) was carried out to measure IGHG4 copies number with SYBR Green detection and comparison to a reference gene (36B4). A IGHG4/36B4 ratio was considered normal (2 copies of IGHG4) when between 0.8 and 1.2. We studied 44 DS persons: 21 males and 23 females from 7 years to 57 years, composed of 23 DS persons (11 males and 12 females) carrying severe IgG₄ deficiency (<0.02 g/L), 5 having an IgG₄ level not detectable and 21 DS subjects (10 males and 11 females) with no IgG₄ deficiency (level >0.1 g/L). The patient group was compared with 38 healthy donors (controls) without DS.

Results: IGHG4 heterozygous deletion was found in 16 (69.6%) DS patients with IgG₄ deficiency versus in 2 (9.5%) DS subjects without IgG₄ deficiency (p=0.0001 with Yates correction) in the control group, no deletion was seen.

Conclusions: IGHG4 haploinsufficiency is highly correlated to IgG₄ deficiency in our population with DS, but other factors exist that needs to be identified.

Biography

Jeraiby M has completed his Residency Program in Medical Biology (MD) at Saint-Étienne University Hospital Center, France. He is currently an Assistant Professor in Medical Biochemistry, Faculty of Medicine, Jazan University, Kingdom of Saudi Arabia. He has published more than 7 papers in international journals and has been serving as a Reviewer in clinical case report journal.

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Overcoming spurious hyperkalemia due to platelets

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Background: The occurrence of spuriously high serum potassium levels have been associated with high platelet counts. It is due to the degranulation of platelets during clotting *in vitro*, releasing potassium into the serum.

Case Presentation: A 69-year-old man was admitted following a fall. On admission the white cell count was 12,920/ μ L, hemoglobin 83 g/L and the platelet count 1,550,000/ μ L (150,000-450,000). Serum sodium, potassium and chloride were respectively 141, 5.8 (3.5-5.1) and 113 mmol/L respectively. Plasma sodium, potassium and chloride (on a sample collected into lithium heparin at the same time) were 141, 4.3 and 112 mmol/L, respectively. Serum creatinine was 1.5 mg/dL (0.8-1.3). The blood picture showed macrocytes and spherocytes with normal leucocytes, together with severe thrombocytosis. Bone marrow was normocellular and had increased megakaryocytes with some dysplastic forms. Platelet lakes/clumps were prominent. The myeloid series was normal and the erythroid series had reduced precursors. The trephine biopsy showed increased megakaryocytes with clustering, without significant fibrosis. JAK2 V617F mutation was detected. The patient was diagnosed to have essential thrombocythemia.

Discussion: This case illustrates the occurrence of spurious hyperkalemia associated with marked thrombocytosis. The collection of a sample into lithium heparin at the same time, allowed the laboratory to issue the true potassium level. Essential thrombocythemia is identified by an increased platelet count due to abnormal pluripotent stem cell proliferation resulting in excessive megakaryocyte division. The above investigations supports this diagnosis as against a secondary thrombocythemia. The clinical complications involve the sequela of abnormal platelet function, namely haemorrhage or thrombosis. Potassium measurement should be performed in a plasma sample (and not in serum) in the presence of marked thrombocytosis.

Biography

I am Suhanyah Mahathevan. I work as a Biomedical Scientist in Lanka Hospital Diagnostics, Sri Lanka. My education qualifications: BSC (Chemistry, Graduate Chemist), MSC (Biomedical Science, University of East London, UK), MBA (University of Kelaniya), International Specialist in Chemistry from American Society of Clinical Pathology (SC- ASCP), Sri Lanka Medical Council Registered Medical Technologist (Reg No: 2178).

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Glioma Tumor Segmentation Using Deep Cascaded – 3D Convolutional Neural Networks

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Glioma is a brain tumor, mainly dangerous form of cancer which starts in the gluey supportive cells (glial cells) that encircle nerve cells and help them function. Glioma tumor brain structure segmentation in non-invasive magnetic resonance images (MRI) has enticed the interest of the research community for a long time because of morphological changes in these structures. In this poster, we propose a deep cascaded 3D convolutional neural network (DC-3DCNN) based method to segment glioma lesions from multi-contrast MR images. DC-3DCNN was evaluated on a challenge dataset, where the performance of our method is also compared with different current publicly available state-of-the-art lesion segmentation methods.

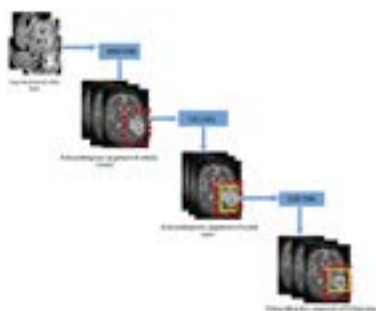


Figure1: Proposed Method

	Dice			Hausdorff (mm)		
	ET	WT	TC	ET	WT	TC
Mean	0.888	0.897	0.697	10.256	2.468	22.648
Standard deviation	0.121	0.123	0.142	52.364	16.156	54.324
Median	0.987	0.970	0.913	1.645	2.256	2.456

Table1: Dice and Hausdorff measurements of the DC-3DCNN method on BraTS 2017 denote enhancing tumor core, whole tumor and tumor core, respectively

Biography

I'm Wiem Takrouni from Tunisia, I'm a Phd Student in computer vision and Medical imaging in the (NOCCS Laboratory, National School of Engineering of Sousse, University of Sousse, Tunisia). I have three publications paper conferences: two publications in smart vehicle with deep learning and a publication in tumor reconstruction in medical imaging.

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Accepted Abstracts

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Use of free to total prostate-specific antigen ratio to improve differentiation of prostate cancer from benign prostate hyperplasia in Sudanese patients

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Objectives: The aim of this study is to evaluate the use of F/TPSA ratio to improve differentiation of prostate cancer from benign prostatic hyperplasia in Sudanese patients in Khartoum state.

Materials & Methodology: A prospective, analytical, hospital based study case control study. This study was carried out in Fedail Medical Hospital during the period of 2010 to 2012. This study was performed on 200 patients as study group and 100 healthy volunteer as control group. Serum levels of TPSA (total prostate specific antigen) and FPSA (free prostate specific antigen) were measured by Roche immunoassay e411.

Results: Detection rate of PCa for serum TPSA level 4-10 ng/ml and serum TPSA level of 10 to 20 ng/ml was (32.2%) and (54.3%), respectively. Mean F/TPSA ratio value was significantly lower in PCa patients (15.6 ± 8.7) than in BPH group (30.3 ± 7.4) ($p > 0.05$). Among patients with serum PSA level of 4 to 10 ng/ml ($n=93$), mean F/TPSA ratio in BPH group ($n=63$) was (31.98 ± 4.65) and in PCa group ($n=30$) was (14.4 ± 4.65) ($p < 0.01$). For serum PSA level of 10-20 ng/ml ($n=43$), mean F/TPSA ratio in BPH group ($n=18$) was (25.11 ± 6.65) and in PCa group ($n=25$) was (15.72 ± 8.7) ($p < 0.01$).

Conclusions: Determination of F/TPSA ratio improves differentiation of PCa from BPH. This study recommends a cut-off value of 18% to be applied to Sudanese patients.

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Pathogenic bacteria profile and antimicrobial susceptibility patterns of ear infection at Bahir Dar Regional Health Research Laboratory Center Ethiopia

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Ear infection linked with frequent antibiotic prescription, hearing impairment, severe disability and death is a public health threat in developing countries. However, there is scarcity of documented data in the study area. Therefore, this study aimed at determining bacterial etiologic agents and their antimicrobial susceptibility patterns among patients of all age groups referred to Bahir Dar Regional Health Research Laboratory Center. Retrospective data recorded on culture and antimicrobial susceptibility profile were retrieved for analysis. Pus swabs from discharging ears collected and processed for aerobic bacteria culture and susceptibility testing. Of the total 368 pus swab samples processed, 296 (80.4%) were culture positive. Of which, 289 (97.6%) were bacteria and 7 (2.4%) were yeast cells. The proportion of ear infection was higher in males (92.7%) than females (65 %) (P=0.014). The frequency of ear infection below 21 years of age was 65.2%. The predominant isolate was *Pseudomonas aeruginosa* (29.7%) followed by *Staphylococcus aureus* (26.3 %) and *Proteus* spp. (21.9%). High level of antimicrobial resistance rates were observed for amoxicillin/clavulanic acid, ampicillin and penicillin whereas ciprofloxacin, ceftriaxone, chloramphenicol, cotrimoxazole, gentamicin and amikacin were found effective against the isolated bacteria. Aerobic bacterial otitis media linked with high levels of resistance against amoxicillin/clavulanic acid and ampicillin is a major health problem in the study area. Moreover, considerable level of oxacillin resistant *S. aureus* suggests the diffusion of methicillin resistant *S. aureus* in the community. Therefore, treatment of otitis media in the study area needs to be guided by antibiotic susceptibility testing of isolates.

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Consumer perception, purchase intention and barriers to promote organic food products among super market consumers in Sri Lanka

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Organic food consumption is increasing day by day among world population, although it is still in infant stage in Sri Lanka. Increasing health hazards occurred by agro chemicals, environmental issues and developing awareness on harmful effect on conventional food act as main reasons for popularizing organic food products. Therefore this study attempts to examine consumer perception and purchase intention on organic food products among supermarket consumers based on the theory of planned behavior, the five steps of consumer decision making process based on previous researches on organic foods, eighteen items of four dimensions were constructed to measure the consumer's perception towards organic food, six items were used to measure their purchase intention and six items were engaged to determine purchasing behavior on organic food products among super market consumers. Data was collected in supermarkets and surrounding areas in the district of Galle, Kaluthara and Colombo in Sri Lanka. A total of 288 completed questionnaires were gathered, representing 96% response rate, using convenient sampling method and analyzed by using SPSS package. The results indicated that intention to purchase organic food was significantly influenced by the consumer's perception of safety, health, environmental factors and animal welfare of the product. 70% agree with all statements relating to safety section, means safety factor depend on purchase intention and perception on organic food products positively. 43% of the respondents agree with all three statements of environmental and animal welfare factor and further 31% agree to at least two statements which stand positively for consumer perception and purchase intention on organic food products. 87% respondents stand on health factor which influence positively for perception and purchase intention on organic food products. Only 47% respondents stand that quality factor depend on perception and purchase intention on organic food products, so it is not support the comments directly. Differences were observed in the purchase intention of organic food products according to respondent gender, age, income level, education level. Theoretically, this study supported the view of consumer's perception towards organic food products will influence their purchase intention. Poor awareness, poor availability and lack of confidence were act as significant barriers to promote organic food products. The findings proposed useful information to organic marketers help them to develop marketing strategies to convince organic food products to enhance purchase intention in Sri Lankan super market sector.

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Demand management and optimization using minimal re-test intervals

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Demand management and demand optimization strategies require a multi-faceted approach with buy-in to ensure success. To that end, we engaged with clinical colleagues to explore how to optimise the services that we provide. We commenced an initiative to curb inappropriate demand by restricting certain tests within a repeat time window (a lock-out interval). We describe here initial data from the first set of tests that we have locked-out as an approach to manage demand. We piloted this approach with a sub-set of tests from within the chemistry, haematology and microbiology sections of the laboratory, with the intention that if there is demonstrable benefit, that other tests will be considered for restriction on a time basis. In 2016, we identified an initial list of 19 common tests to lock-out, implementing minimal repeat frequencies that the literature supports, adds no clinical value. For technical reasons, we were not able to lock-out 5 of the tests (because there was a clinically justified reason for a request to be from multiple sites such as wound swabs – and to lock-out the test would have restricted valid tests from being requested). Data was captured from 1st January to the 30th June for 2016 (before the lock-outs were implemented) and 2017 to compare the increase in tests that were restricted compared to those that were not. The locked-out group of tests reduced by an overall average of 6.4% versus the previous year, and saved 1.7 million Saudi Arabian Riyal (SAR) during 6 months period. Given that we were growing at +7% year over year, this means that the testing volume reduced by approximately 13% in real terms for all tests.

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Drug abuse: The problem

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Background: The abuse of drugs can have serious ramifications on a person's physical health, mental health, and overall well-being.

Aim: The aim of our work is to determine the prevalence of some drugs among patients from the laboratory point of view.

Materials & Methodology: The sample size for this study was 500 patients with acute poisoning by some drugs of abuse. In this study all patients were subjected for detection of drugs of abuse in urine by EMIT system and Gas Chromatography/Mass Spectrometry (GC/MS) to confirm the prevalence of some drugs among patients from the laboratory point of view.

Results: The study revealed that the percentages of positive urine samples by Enzyme Multiplying Immunoassay Technique (EMIT) confirmed by Gas Chromatography/Mass Spectrometry (GC/MS).

Conclusions: Presence of these drugs has a serious effect on man health, consequently his environment.

Recommendations: It is recommended that public health intervention aimed at preventing drug use among inhabitants should be designed to raise awareness about the negative effects of drug abuse.

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Primary cutaneous actinomycosis: A first case report from Kurdistan, Iraq

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Introduction: Actinomycosis is a chronic infectious disease of the cervicofacial area, thorax, or abdomen and caused by the anaerobic gram positive bacterium "*Actinomyces israeli*". It is a commensal of human and characterized by a suppurate fibrotic inflammation, which spread directly to the contiguous tissues. The main clinical types are cervicofacial, thoracic, abdominal, pelvic, and the primary cutaneous which is very rare. The infective agents are member of the normal flora and are frequently cultured from bronchi, gastrointestinal tract, and female genital tract. They are considered as opportunistic pathogen. Two groups of actinomycetes are recognized according to their metabolism; the fermentative and the oxidative. The first causes actinomycosis, while the second include agents causing Actinomycetoma and Nocardiosis. It has been suggested that poor dental and oral hygiene in addition to frequent trauma provide the portal of entry. To our knowledge this is the first case report in Kurdistan Region/Iraq.

Case Report: A fifty-five year old woman presented with multiple discharging sinuses on both legs since 9 years with slowly progressive course; from rural area in Kurdistan region-Iraq. Bacteriological study including macroscopical and cultural examination of the discharge and crust taken deep from the lesions revealed *Actinomyces* as the causative organism. Good response with complete healing was noticed after 4 months of treatment with Benzathine penicillin.

Discussions: Actinomycosis was common in the pre-antibiotic era and is less frequent now. The clinical presentations of the disease, which can affect any organ, are variable and the disease has been called the most misdiagnosed disease. The presentation of the studied case with slowly progressive chronic discharging sinuses on both legs since 9 years brought our attention to the primary cutaneous actinomycosis as the most likely diagnosis. Bacteriological diagnosis was obvious. Although, the presence of sulfur granules is characteristic of the disease. However, its absence as in this case does not rule out the diagnosis of this disease. Chronic course of the disease and usage of different tropical and systemic therapies may have influenced the appearance of these granules. Actinomycosis must be treated with high doses of antimicrobials for a long period may be needed for such cases. Intravenous administration of 18-24 million units of penicillin for 2-8 weeks, followed by oral therapy with penicillin or amoxicillin for 6-12 months may be used in serious cases. However, since our patient were living in rural area far a way from any health center, we found it more practical and helpful to use a long acting penicillin (Benzathine penicillin) intramuscularly weekly to avoid frequent visit. The excellent response observed by the disappearance and healing of the sinuses was delighting.

Conclusions: Primary cutaneous actinomycosis is very rare; its clinical presentation is variable. Therefore, awareness of the full clinical spectrum of the disease is important, which should be added with bacteriological study to confirm the diagnosis.

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The use of FNAC for the diagnosis of TB lymphadenitis in low income countries

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Tuberculosis (TB), which is one of the oldest diseases known to affect humans and is a major cause of death worldwide, especially in developing countries like Ethiopia, based on WHO 2017 report Ethiopia is one of the highest burden countries in the world. Primarily considered to be a pulmonary disease, TB can affect almost any organ. The term “extrapulmonary TB” has been used to describe the isolated occurrence of TB at body sites other than the lung. Lymphadenitis is the most common extrapulmonary manifestation of tuberculosis. Over the last two to three decades, fine needle aspiration cytology (FNAC) has emerged as a simple out-patient diagnostic procedure for the evaluation of tuberculous lymphadenitis. Diagnosis of tuberculosis can be made by the demonstration of epithelioid granulomas with or without caseation even in the absence of AFB. The objective is to study the usefulness of fine needle aspirates in diagnosis of TB in patients from a low income country. To compare the effectiveness of FNAC with or without the staining methods.

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Prevalence of extra pulmonary tuberculosis using Gene Xpert-rapid molecular diagnostic test

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Background: The Xpert MTB/RIF is an automated real-time polymerase chain reaction test for simultaneous detection of tuberculosis and rifampicin resistance.

Aims & Objectives: The aim of this study is to find out the prevalence and pattern of extra pulmonary tuberculosis using Gene Xpert among heterogeneous clinical samples and to elicit the variations refer to HIV +ve and HIV –ve status.

Methodology: Prospective observational study enrolled 1000 (991) patients of suspected pulmonary (63) and extra pulmonary (37) HIV/TB cases. Samples were collected in sterile containers and processed for Gene Xpert.

Results: A total of 991 respiratory specimens HIV+TB+ (N=652) and HIV-TB (N=339) were tested. Of the HIV+TB+ve group sputum, pus, pleural fluid, BAL and FNAC were 78 (69%), 16 (14%), 7 (6%), 7 (6.1%), 5 (4.4%) and 1 sample and HIV+TB-ve group 539 (95%), 10 (1.8%), 7 (1.2%), 7 (1.2%), 1, and CSF 1 observed Gene Xpert positive. In HIV-TB+ group were 85 (57%), 33 (22.2%), 14 (9.4%), 9 (6%), 3 (2%), 3 (2%) and 1 tissue sample and in the HIV-TB-ve group 127 (66.4%), 14 (7.3%), 17 (8.9%), 20 (10.4%), CSF 4 (2%), gastric fluid 2 (1%), 1 cervical fluid and 1 tissue sample observed Gene Xpert positive respectively.

Conclusions: Gene Xpert is useful for rapid detection of TB and identification of RIF resistance especially in a high prevalence country like India. The results are superior in extra pulmonary tuberculosis patients. However, test results must always be confirmed by culture and DST due to rising incidence of pre-XDR and XDR cases.

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Gallbladder adenocarcinoma: Potential target for anti-Her therapy

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Her-2 (ErbB-2) is an oncogene frequently overexpressed in breast and gastric adenocarcinomas and anti Her-2 targeted therapy can be given to such patients. Her-2 overexpression and role of anti Her-2 targeted therapy in cases of gallbladder adenocarcinomas (GBAC) is still debatable. Scoring protocols for Her-2 expression in breast and gastric carcinomas are standardized, however not for carcinomas arising in other body organs like gallbladder. This study is conducted to evaluate expression of Her-2 in patients with GBAC which may benefit from targeted therapy. It is a cross-sectional study conducted on patients with GBAC (n=43; 34 women and 9 men). An automated immunohistochemical technique was used with an anti-ErbB2 antibody. Scoring was conducted according to the CAP (College of American Pathologists) criteria for breast cancer, as well as for gastric and gastroesophageal junction carcinomas. When the scoring protocol for breast carcinomas was used, positive Her-2 staining was observed in 11/43 (25.6%). Out of 11 positive cases, 5 cases (11.6%) were unequivocally positive (3+) and 6 (13.9%) showed equivocal staining. According to the gastric and gastroesophageal junction carcinomas protocol, positive Her-2 staining was observed in 16/43 (37.2%). Out of 16 positive cases, 11 (25.5%) were unequivocally positive (3+) and 5 (11.6%) showed equivocal staining. This study indicates that significant number of GBAC cases show Her-2 overexpression when either of the two documented protocols is used. This subgroup may benefit from inhibitors of the Her-2 pathway. Standardization of scoring protocol for Her-2 expression in GBAC is needed to better evaluate predictive potential of Her-2 for treatment of these tumors.

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SPECTRUM OF RENIN ANGIOTENSIN ALDOSTERONE SYSTEM DISORDERS IN YOUNG HYPERTENSIVES OF PAKISTAN

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The study was a cross sectional study conducted in the Department of Chemical Pathology and Endocrinology Armed Forces Institute of Pathology (AFIP) Rawalpindi from January 2016 to December 2016. 165 young hypertensive subjects, aged 17-40 years, of either gender presenting in the outpatient department (OPD) were recruited from local population of Rawalpindi. All subjects were having blood pressure more than 140/90 mm of Hg and were not on any anti-hypertensive medicine. Patients with renal dysfunction, heart failure, pregnancy and secondary hypertension were excluded from the study. Blood sample was taken from each patient to analyze arterial blood gases, plasma renin, serum aldosterone and electrolytes. Sandwich chemiluminescence immunoassay and ELISA techniques were used to analyze plasma renin and serum aldosterone level. Arterial blood gases and electrolytes like sodium and potassium were measured by potentiometry, while bicarbonate was calculated. Normally distributed continuous variables were presented as mean+SD and others as median. Multiple regression analysis was performed to compute association of age, electrolytes, systolic and diastolic blood pressure in OPD and endocrine clinic AFIP with essential hypertension and primary hyperaldosteronism. $P < 0.05$ was considered statistically significant. Out of 80 subjects, 72 were diagnosed with essential hypertension and 8 with primary hyperaldosteronism. None of the patients had Liddle syndrome, apparent mineralocorticoid excess or Gordon syndrome. Mean age of patients having essential hypertension was 30.97 ± 7.13 years, whereas those with primary hyperaldosteronism was 29.25 ± 7.1 years. Mean serum sodium was 137.8 ± 6.5 mmol/l and potassium was 4.23 ± 0.6 mmol/l. Mean systolic blood pressure of patients measured in OPD was 172.7 ± 19.2 mm of Hg whereas diastolic blood pressure was 100.0 ± 8.3 mm of Hg. Mean systolic blood pressure measured in endocrine clinic AFIP was 142.7 ± 10.5 mm of Hg and diastolic blood pressure was 90.3 ± 6.5 mm of Hg. Diastolic blood pressure was significantly higher ($p = 0.001$) among all the patients reported in OPD. No statistically significant association was found between age, systolic and diastolic blood pressure ($p < 0.05$) in either OPD or endocrine clinic. Therefore, it was concluded that hypertension is not uncommon in young population of Pakistan. Primary hyperaldosteronism as compared to other RAAS disorders, remains the leading cause of hypertension in young population.

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13th International Conference on

Laboratory Medicine & Pathology

June 25-26, 2018 | Berlin, Germany

Second opinion in pathology: Still Not Automated. Evidence Pro and Evidence Against

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The objective of our study is to: 1. distinguish between error and opinion; contrast accuracy and precision in pathology in respect to second review process. 2. Critically appraise and grade (Oxford system) core recent examples of published evidence in support and against second reviews in pathology. 3. Contrast second opinion which is actively sought and “reflex” second reviews (i.e. “node negative breast cancer etc.). 3. Apply AGREE tool for critical appraisal of guidelines to determine the strength of the recommendations for second reviews in pathology. 4. Determine the efficient strategy to reduce diagnostic discrepancies resulted after second reviews in pathology. We have conducted two comprehensive searches PUBMED using the keywords: “2nd opinion, pathology”: 4214 references and “2nd opinion, pathology, outcomes: 727”. Of them, we further extracted 41 studies which contained numeric information on agreement, major and minor disagreement and whether pathology second opinion change outcomes and/or patient management. The following were observed: 1. we identified several trends in the extracted evidence: 2. lower discrepancy if one institution reviews itself; cases include full spectrum daily pathology; cases when pathologists actively seek 2nd opinion excluded (i.e. I am uncertain and asking for help, so I refer the case, having no firm diagnosis in the first place). 3. higher discrepancy if single institution reviews external cases; referred rather than population based (referral bias due to higher complexity); additional tests performed/ new information given to 2nd pathologist (not available to 1st pathologist); cases when 1st pathologist was uncertain (and thus referred) included with the others. Despite the relatively common disagreement between the pathologist, the information whether such disagreements affect patient outcomes is lacking. We present our data in an organized fashion as for the whole spectrum pathology, as by pathology subspecialty areas.

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13th International Conference on

Laboratory Medicine & Pathology

June 25-26, 2018 | Berlin, Germany

Morphological Changes of Grafts in Patients Who Died after Coronary Artery Bypass Graft Surgery from Isolated Coronary Heart Disease and Associated with Hypertensive heart Disease

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Objectives: Vascular graft failure is one of the most common finding in patients undergoing coronary artery bypass graft (CABG) surgery and still remains the major problem after surgery. The aim of the present study was to investigate features of pathomorphological changes in different type of grafts after CABG in patients with isolated coronary artery disease associated with hypertensive heart disease.

Materials & Methodology: Histopathological study was performed on 207 fragments of autopsy sections of autoarterial and autovenous grafts using light microscopy.

Results: It is shown that the condition of the vascular wall depends on hemodynamics leading to degenerative changes of the graft as a result of destructive and proliferative processes in the intima and the middle layer. Active replacement of smooth muscle cells of the media by fibrous tissue and then connective tissues leads to thickness of the vascular wall, stenosis on one hand and on the other hand is a cause of development of unstable atheromatous plaques.

Conclusions: Morphological changes of the venous grafts in patients who underwent CABG and had died after surgery from coronary heart disease associated with hypertensive heart disease were more acute with more aggressive course of atherosclerotic changes with diffuse proliferation of processes and formation of unstable plaques.

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13th International Conference on

Laboratory Medicine & Pathology

June 25-26, 2018 | Berlin, Germany

Commentary on Mutations in Interleukin-10 Receptor in Inflammatory Bowel Disease in Iranian IBD cohort

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Introduction: Early-onset inflammatory bowel disease (IBD) is a diagnosis of Crohn's disease, ulcerative colitis and inflammatory bowel disease unclassified which runs a chronic, relapsing course and can result in substantial long-term morbidity. IBD is a multifactorial disorder with genetic susceptibility, immunological predisposition and environmental triggers.

Aim: The aim of the study is to determine prevalence of IL10R mutation in IBD patients from Isfahan, Iran.

Materials & Methodology: Total DNA content of each patient was extracted from whole blood with and PCR amplification was done as previously described. We performed sequencing of all exons in IL10RA and IL10RB in cohort of IBD patients and healthy control.

Results & Discussions: Overall detection rate of IL-10RA mutations was 69.3% (53/76) and IL10-RB 3.9(3/76) in total patients. Identified IL-10RA mutations were P.(I224V), P.(A153V), P.(A153A), P.(S159G), P.(R263Q), P.(R284C), P.(R351Q), P.(Q376Q), P.(T416I), P.(A493V), P.(A511A) and P.(S563S) and IL10RB mutation was P.(K47E). Of them, P.(A153V), P.(A153A), P.(R284C), P.(T416I), P.(A493V), P.(A511A), P.(S563S) were not reported variant with IBD variants. The most common mutations were P.(A153A) and P (R361G) found in 48 out of 76 patients (63.1%). Like all studies which demonstrate relation between IL10R mutation and IBD our results also confirmed that early-onset IBD could be attributed to a synergistic effect of several variant alleles of the genes encoding IL10 receptors. These variants, alone, could only give rise to a sub-clinical manifestation of the IBD.

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13th International Conference on

Laboratory Medicine & Pathology

June 25-26, 2018 | Berlin, Germany

THE EXPOSURE TO POLLUTANTS OF THE AUTO REPAIR WORKERS: MONITORING THEIR OXIDATIVE STRESS WITH USING THE TEST STRIPS

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Statement of Purpose: Auto repair workers are exposed to multiple pollutants, each of them potentially dangerous for several target organs.

Aim: The aim of this study is to identify their possible overall effect, by monitoring the concentration of salivary malondialdehyde (MDA), index of oxidative stress.

Methodology & Subjects: Concentration of salivary malondialdehyde of 25 male workers, smokers and non-smokers further divided into two subgroups relative to the amplitude of their working place, were monitored using the test strips. The control group consists of twelve and thirteen male smokers, and thirteen non-smokers. Univariate (UVA) and Multivariate (MVA) analysis method were used to analyze the results.

Discussion: No variable is significant ($p \geq 0.05$) for the control group using UVA while age and smoking significantly increases the level of MDA ($p \leq 0.05$) using MVA. For workers group the age and the place of work increases the MDA ($p \leq 0.05$) using UVA analysis while only the place of work remains significant ($p \leq 0.05$) using MVA analysis. MVA analysis reveals that, besides the type of work, also the age and smoking significantly increases the level of MDA, as a result of a higher exposure to pollutants.

Conclusions: We can thus check the cumulative effect of pollutants on auto repair workers, by monitoring the salivary malondialdehyde.

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13th International Conference on

Laboratory Medicine & Pathology

June 25-26, 2018 | Berlin, Germany

A comparison of paracetamol, ibuprofen or diclofenac potassium for pain relief following dental extractions: A randomized controlled trial

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Objective: To compare the effectiveness of different oral analgesics for relieving pain and distress in adults following the extraction of teeth under local anaesthesia. The analgesics included paracetamol, ibuprofen and diclofenac potassium.

Methods: This randomized controlled study was conducted from 10th of November 2015 until 10th of May 2016. 120 patients were randomly allocated to one of three groups. Forty patients were in the paracetamol (1000 mg) group (control group), 40 in the ibuprofen (400 mg) group and 40 in the diclofenac potassium (50 mg) group. Evaluation of the post extraction pain was made by patients immediately postoperatively, 2, 4 and 6 hours postoperatively on standard 100 mm visual analogue scales (VAS), tagged at the endpoints with “no pain” (0 mm) and “unbearable pain” (100 mm). Furthermore, each patient was observed preoperatively and immediately postoperatively for signs of distress by using a 5-point face scale.

Results: There were significant decreases in mean pain scores for diclofenac potassium group compared to paracetamol and ibuprofen groups at 4 and 6 hours postoperatively (P-values from one-way ANOVA: 0.00, 0.001, 0.04, 0.005). Changes in distress scores from the preoperative score to the post-operative score were made using the paired sample t-test. There were significant decreases in distress scores between the pre-operative and post-operative scores (P=0.001).

Conclusions: This study has shown that diclofenac potassium was more effective than paracetamol or ibuprofen for postoperative analgesia in adults who are having teeth extracted under local anaesthesia.

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13th International Conference on

Laboratory Medicine & Pathology

June 25-26, 2018 | Berlin, Germany

ANTI GLYCATION EFFECT OF WHITTON ROOT (EULOPHIA NUDA) IN-VITRO CONDITION IN RELATION TO DIABETES MELLITUS

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Non enzymatic glycation takes place when elevated levels of reduced sugars react with amino groups of proteins and is called as advanced glycation end products (AGEs) responsible for diabetes mellitus. Hydroalcoholic extract of whitton root (*Eulophia nuda*) was tested for *in-vitro* inhibition of non-enzymatic glycation of IgG (immunoglobulin G). Plant extracts have their own importance and now being studied extensively due to little or no side effects in all aspects of life sciences from botany to medicine in biochemical research. In present study whitton root was selected and used to check the glycation inhibitory activity *in vitro* condition. Various combinations of glucose, protein and whitton root extracts were made under *in vitro* conditions and their activity was monitored with trichloroacetic acid treatment method at 350 nm. Glycated products/AGEs was more with high glucose and high protein concentration and these were decreased by highest concentration of whitton root extract i.e. 30 mg/mL or 300 μ L. Lower concentrations of plant extract produced either no or least response against advanced glycation end products (AGEs).

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13th International Conference on

Laboratory Medicine & Pathology

June 25-26, 2018 | Berlin, Germany

Vancomycin loaded super paramagnetic $MnFe_2O_4$ nanoparticles coated with PEGylated chitosan to enhance antibacterial activity

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Background & Aim: Increasing prevalence of antibiotic-resistant and failed-treatment make more investigations to deal with these problems. Hence new therapeutic approaches for effective treatment are necessary. Ferrite superparamagnetic nanoparticles have potential antibacterial activity.

Methodology: In this study we prepared $MnFe_2O_4$ superparamagnetic nanoparticles as core by precipitation method and used chitosan crosslinked by glutaraldehyde as shell, then modified with PEG to increase stability of particles against RES.

Results: Chitosan coating not only improves the properties of ferrite nanoparticles but also has antibacterial activity. FT-IR confirmed this surface modification; XRD and SEM were developed to demonstrate particle size and characteristics of crystal structure of these nanoparticles. Final particle size was reported approximately 25 nm. Magnetic properties of nanoparticles were evaluated by VSM. Actual drug loading and releasing were examined by (UV-Vis) spectroscopy method.

Conclusions: We employed liquid broth dilution method to assessment antibacterial activity of nanoparticles against microorganisms. Significant antibacterial effect against gram negative bacteria was developed.

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13th International Conference on

Laboratory Medicine & Pathology

June 25-26, 2018 | Berlin, Germany

Histopathological evaluation of carcinoma of breast in Modified Radical Mastectomy specimens

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Background & Aim: Carcinoma of breast has become the major public health problem among females in developing as well as developed countries. In Nepal it comprises 6% of total cancers cases and often diagnosed at advanced stage. Surgical removal or modified radical mastectomy (MRM) is the most commonly used tools for disease management. The aim of this study is to identify the clinical, macroscopic and microscopic features of MRM specimens.

Materials & Methodology: This prospective cross-sectional study was carried out in the Department of Pathology, Bhaktapur Cancer Hospital, Bhaktapur, Nepal. Macroscopic and microscopic examination provided the tumor size, stage, grade, lymph node status, lympho-vascular invasion and perineural invasion. Data were collected and analyzed using SPSS 16.

Results: The study comprised 112 breast cancer patients of which 109 (97.3%) were females and 3 (2.7%) were males. Invasive ductal carcinoma no specific type was the most common type of breast carcinoma. (84 cases) accounting 75% of total cases. Carcinoma with medullary features was second most common (6 cases) comprising 5.4% cases followed by lobular, papillary, apocrine, mucinous and NST mixed types. Grade II tumors were most frequent grade observed in 76.79% cases followed by Grade I (12.50%) and Grade III (10.71%).

Conclusions: As a conclusion invasive ductal carcinoma was the most common histological type breast cancer and the tumors were found at T2 and N3 stage i.e maximum at grade II. Our study provides prognostic significance of histopathological information in breast cancer management.

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13th International Conference on

Laboratory Medicine & Pathology

June 25-26, 2018 | Berlin, Germany

Combining 2D angiogenesis and 3D osteosarcoma microtissues to improve vascularization

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Introduction: The number of patients suffering from cancers worldwide is increasing, and one of the most challenging issues in oncology continues to be the problem of developing active drugs economically and in a timely manner. Considering the high cost and time-consuming nature of the clinical development of oncology drugs, better pre-clinical platforms for drug screening are urgently required. So, there is need for high-throughput drug screening platforms to mimic the *in vivo* microenvironment. Angiogenesis is now well known for being involved in tumour progression, aggressiveness, emergence of metastases, and also resistance to cancer therapies.

Materials & Methodology: In this study, to better mimic tumour angiogenesis encountered *in vivo*, we used 3D culture of osteosarcoma cells (MG-63) that we deposited on 2D endothelial cells (HUVEC- Human Umbilical vein Endothelial Cells) grown in monolayer. Combination 2D HUVEC/3D MG-63 was characterized by Indirect immunofluorescence, Scanning electron microscopy, Optical microscopy and mRNA expression (qPCR).

Results: We reported that endothelial cells combined with tumor cells were able to form a well-organized network, and those tubule-like structures corresponding to new vessels infiltrate tumor spheroids. These vessels presented a lumen and expressed specific markers as CD31 and collagen IV. The combination of 2D endothelial cells and 3D microtissues of tumor cells also increased expression of angiogenic factors as VEGF, CXCR4 and ICAM1.

Conclusions: The cell environment is the key point to develop tumor vascularization *in vitro* and to be closer to tumor encountered *in vivo*.

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13th International Conference on

Laboratory Medicine & Pathology

June 25-26, 2018 | Berlin, Germany

Passive and Active Cellular Immune Surveillance (CIS) of Central Nervous System (CNS) of healthy Humans revealed with the Marburg Cerebrospinal Fluid Model

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Transfer of blood leukocytes into cerebrospinal fluid (CSF) seems to be impossible in CNS of healthy humans: CNS (central nervous system) blood capillaries are completely locked by blood-brain-barrier (bbb); choroid plexus, producer of CSF into CNS ventricles, is locked for blood cells by blood-CSF-barrier (bCSFb); but proteins (albumin>immunoglobulins) are secreted here from blood into ventricular CSF. Literature studies reveal no bbb and leaky ependymal surfaces at 8 brain nuclei of circumventricular organs (CVOs) in CNS of healthy humans: 2 area postrema, 2 median eminence, neurohypophysis with infundibulum, organum vasculosum of lamina terminalis, pineal gland, subfornical organ. Blood pressure is the main force which presses blood leukocytes through leaky capillaries into CVO stroma; leaky ependyma at CVOs paves the way of blood leukocytes into CSF of 3rd and 4th ventricles, representing 0-3/ μ l leukocytes in suboccipital CSF (SOP-CSF) of healthy humans. Depending on blood pressure, transfer rates per min of blood leukocytes through CVOs into CSF increases from 0/ μ l to 32 leukocytes/ μ l SOP-CSF: Smaller blood lymphocytes (>90%) transfer easier than larger monocytic cells (<10%) into ventricular CSF, where some inactive blood leukocytes can transfer into the brain through naked ventricle walls (without ependyma) to perform passive CIS (common integration site) in human CNS. Active CIS is performed with about one HLA-DR+-activated lymphocyte of the 32 transferred blood leukocytes, which secrete proteases to pave the way actively through whole CNS. HLA-DR+-lymphocytes, when activated to CNS constituents in the body and so being increased, can induce destructive-inflammatory processes in human CNS, e.g. multiple sclerosis.

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13th International Conference on

Laboratory Medicine & Pathology

June 25-26, 2018 | Berlin, Germany

The use of FNAC for the diagnosis of TB lymphadenitis in low income countries

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Tuberculosis (TB), which is one of the oldest diseases known to affect humans and is a major cause of death worldwide, especially in developing countries like Ethiopia, based on WHO 2017 report Ethiopia is one of the highest burden countries in the world. Primarily considered to be a pulmonary disease, TB can affect almost any organ. The term “extrapulmonary TB” has been used to describe the isolated occurrence of TB at body sites other than the lung. Lymphadenitis is the most common extrapulmonary manifestation of tuberculosis. Over the last two to three decades, fine needle aspiration cytology (FNAC) has emerged as a simple out-patient diagnostic procedure for the evaluation of tuberculous lymphadenitis. . Diagnosis of tuberculosis can be made by the demonstration of epithelioid granulomas with or without caseation even in the absence of AFB. The objective is To study the usefulness of fine needle aspirates in diagnosis of TL in patients from a low income country. To compare the effectiveness of FNAC with or without the staining methods.

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13th International Conference on

Laboratory Medicine & Pathology

June 25-26, 2018 | Berlin, Germany

The Periplasmic Chaperone Network of *Campylobacter jejuni*: Evidence that SalC (Cj1289) and PpiD (Cj0694) Are Involved in Maintaining Outer Membrane Integrity

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Alzheimer's disease (AD) is considered as the most common type of dementia among older people. Almost 9 million people are suffering from AD in China and increasing with the course of time. Currently many different herbs are used for the treatment of AD including six flavors Rehmannia Pills, Gastrodia and Uncaria Drink. It has been suggested that some acetyl-cholinesterase inhibitors induced molecular and cellular change that directly influence AD pathogenesis. In our study literature search was performed to find mangrove ecosystem phytochemical structures by using Builder software implemented in Molecular Operating Environment (MOE 2009). Acetyl-cholinesterase (PDB ID 1EVE) structure with bound ligand was retrieved from Protein Data Bank. Molecular docking was performed by triangular matcher placement method and rescore by London dG parameter. The crystal structure has bound ligand which was active against acetyl-cholinesterase. It can be concluded by docking analysis of different compounds that mangrove ecosystem compound may serve as good inhibitors against acetyl-cholinesterase.