

Abstract: Para Clinical Sciences

Morphological Study of Lung Lobes, Fissures and Their Variation in Rajasthan State

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INTRODUCTION

The lungs are essential organs of respiration, situated on either side of the heart and other mediastinal content. Right lung has three lobes and left has two lobes divided by fissures. Awareness and knowledge of anatomical variation of fissure of lung, lobar anatomy and bronchopulmonary segment is required for accurate interpretation of different imaging technique, surgical resection (lobectomy) of lung and management of preoperative or postoperative complications. The purpose of this study was to find out the prevalence of variations in morphology of lungs in population of Rajasthan.

METHODS

The study included 115 formalin fixed adult lungs (60 left sided and 55 right sided) of unknown age and sex. Demand and diseased lungs were excluded from the study. Details of morphology of lobes and fissure were recorded, tabulated and photographed.

RESULTS

The right lung showed 40% of complete oblique fissure and 47% complete horizontal fissure (Grade I/II Crag and Walker criteria). 58% oblique fissure and 40% of horizontal fissure incomplete belonged to grade III while 2% oblique fissure and 13% horizontal fissure absent (grade IV) on the right side. The lung showed 55% complete oblique fissure (Grade I/II), 42% in Grade III and Grade IV respectively. Incidence of accessory fissure was more on right side (5.45%) than left (3.33%). Variation in hilar structured also observed. Only one right lung showed single lobe due to complete absence of oblique and horizontal fissures and one lobe of azygos vein was found.

CONCLUSION

The results showed wide range of variation among different population attributed to ethnic, genetics, environmental factor and due to difference in methodology when compared with previous studies.

Study of Histopathological Patterns of Endometrium in Abnormal Uterine Bleeding

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INTRODUCTION

Abnormal uterine bleeding (AUB) is defined as any bleeding pattern that differs in the frequency, duration and amount from a pattern observed during a normal menstrual cycle or after menopause. It is the commonest presenting symptom and major gynecological problem responsible for one-third of all outpatient gynecological visits. The purpose of this study was to determine the incidence of various histological patterns of endometrium with respect to age, parity and menstrual status.

METHODS

The present study on abnormal uterine bleeding (AUB) was a prospective study, conducted in the Department of Pathology, JLN Medical College and Associated Group of Hospitals, Ajmer on 460 patients for a period of one year (April 2015-March 2016). Clinical data of the study subjects was received along with samples of the endometrium obtained by biopsy, dilatation and curettage and hysterectomy specimens.

RESULTS

AUB was most common in the age group of 31-40 years (40.6%). The most common type of bleeding pattern observed in AUB patients was menorrhagia in 283 cases (61.7%). It was also common in multiparous women in 318 cases (69.2%). Out of the 460 cases of AUB, 266 cases (57.8%) were of proliferative endometrium which was followed by 88 cases of secretory endometrium, 38 cases (8.2%) of endometrial hyperplasia, 26 cases (5.6%) of disordered proliferative phase, 18 cases (3.9%) of endometrial polyp and 9 cases (1.9%) of endometrial carcinoma. Other patterns identified were endometritis (1.7%), mixed phase (0.8%) and atrophic endometrium (0.6%). The histopathology of endometrium revealed various patterns ranging from proliferative endometrium to malignancy

CONCLUSION

Evaluation of endometrium should be recommended in all women presenting with AUB to rule out the possibility of any pre neoplastic conditions and malignancy.

Cytological Evaluation of Thyroid Lesion on the Basis of Bethesda System

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INTRODUCTION

Fine needle aspiration cytology (FNAC) has emerged as one of the well-established first-line diagnostic techniques in the evaluation of thyroid lesions as well as solitary thyroid nodule. To address the variability in terminology and other issues related to thyroid fine needle aspiration (FNA), the National Cancer Institute proposed "The Bethesda System for reporting thyroid cytopathology" (TBSRTC). The current study was done to perform uniform reporting system for thyroid cytopathology based on Bethesda system and to reduce surgical procedure of those thyroid lesions, which can easily be treated medically.

METHODS

The study was undertaken on 50 patients with clinically enlarged thyroid during a period of approximately two years who attended the Cytology section of Department of Pathology, S P Medical College and Associated Group of Hospitals, Bikaner. All fine needle aspiration cytology (FNAC) diagnoses were classified according to the features given in the monograph of TBSRTC into non-diagnostic/unsatisfactory (ND/UNS), benign, atypia of undetermined significance/follicular lesion of undetermined significance (AUS/FLUS), follicular neoplasm/suspicious of a follicular neoplasm (FN/SFN), suspicious for malignancy (SFM) and malignant.

RESULTS

The distribution of various categories from 50 evaluated thyroid nodules was as follows: 6% ND/UNS, 74% benign, 2% AUS/FLUS, 10% FN, 2% SFM, and 6% malignant.

CONCLUSION

TBSRTC is an excellent reporting system for thyroid FNA. It also provides clear management guidelines to clinicians to go for follow-up FNA or surgery and also the extent of surgery.

A Comparative Study of Services Provided at Adolescent Friendly Health Clinics (AFHC) Under Rashtriya Kishor Swasthya Karyakram (RKSK) and Barriers in Service Utilization

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INTRODUCTION

Adolescents comprise nearly 12 percent of the world's population. Majority of adolescent girls (56%) suffer from moderate/severe anemia. 21% of India's population being in this age group, India has the largest share of the adolescents in the world, RKSK was started in 2014 to address the issue of reproductive and sexual health of adolescents. The study aimed to assess the quality of services provided at the AFHCs run under RKSK and identifies barriers in service utilization.

METHODS

This facility based cross sectional, descriptive study conducted from October 2016 to December 2016. It was based on interview of Adolescent clients visiting rural and tribal AFHCs, the service providers and investigator's observations. Tools used were pretested semi structured questionnaires and observational checklist. Data was analyzed on SPSS version 16. Chi square test for significance was applied to data.

RESULTS

At more than 80% AFHCs the service providers had good communication skills but 10 % health workers and counselors had poor knowledge of ARSH and 24% lacked positive attitude. 54.76 % AFHCs were only fairly equipped. Only 34% clients knew beforehand about AFHC, average satisfaction score was 2.9 for tribal and 3.0 for rural clients.

CONCLUSION

The main barriers in service utilization were poor sensitization of adolescents and community, distant location, less gender friendly services, long waiting time, limited training of service providers and poor supportive supervision. These can be overcome by creating public awareness through locally acceptable media, ensuring presence of service providers of both genders and their ongoing trainings.

Role of Endometrial Imprint Cytology and its Histological Correlation

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INTRODUCTION

Cytology of the endometrium is an under used technique in diagnostic pathology. It has been used for diagnosis and prognosis of endometrial hyperplasia and carcinoma. The present study was conducted to evaluate whether it is possible to assign histopathology-like diagnosis by Imprint cytology and also to evaluate the usefulness of endometrial imprint cytology in the assessment of patients of low clinical suspicion.

METHODS

A prospective study was conducted on 250 patients who had been advised dilatation and curettage (D & C) in the Obstetrics and Gynecology outpatient department and samples were analysed in the Department of Pathology, R N T Medical College and Associated Group of Hospitals, Udaipur, in the year 2015- 2016. Imprints from the freshly curetted material were prepared. The Imprints were stained with Hematoxylin and Eosin. Finally, the cytological diagnosis was compared with the histopathological diagnosis.

RESULTS

Inadequacy rate was 16%. Sample adequacy was 94 % in reproductive age group which reduced to 74.34 % in perimenopausal/postmenopausal age group. On imprint smear analysis, menstrual cycle in proliferative phase was diagnosed in 125 cases followed by menstrual phase in 38 cases, secretory phase 37, mixed reaction in 6 cases and complex hyperplasia and endometrial carcinoma 2 cases each. The overall sensitivity was 86.42%, specificity was 99.05%, PPV of 97.84%, NPV of 99.41% and accuracy was 99.05%.

CONCLUSION

Touch imprint cytology can be utilized as an adjunct to histopathology as a quick diagnostic tool with high diagnostic accuracy. Histopathology-like categories can be assigned on imprint cytology. It can also be used in well-established institutions to decrease the diagnostic time.

Spectrum of Histopathological Lesions in Nephrectomy Specimens

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INTRODUCTION

Kidneys are vital organs essential for the excretory function. These are involved in various pathological conditions, some of which may require surgical removal. The purpose of this study was to study the incidence of various types of neoplastic and non-neoplastic conditions and histopathological features and clinicopathological correlation of various lesions in nephrectomy specimens.

METHODS

Both retrospective and prospective studies were done over the period of 4.5 years (January 2012- June 2016). All nephrectomy specimens received in the Department of Pathology, J L N Medical College and Associated Group of Hospitals, Ajmer were analyzed with respect to gross, microscopic and clinical features.

RESULTS

Out of the total 59 cases, 38 were neoplastic and 21 were non-neoplastic. Out of the 38 neoplastic cases, Renal cell carcinoma (Clear cell type) with 27 cases (71.05%) were commonest followed by two cases (5.26%) of mixed (Clear cell and Chromophobe) and Papillary Renal cell carcinoma and one case (2.63%) each of Transitional cell carcinoma, Oncocytoma, Nephroblastoma, Chromophobe Renal cell carcinoma, Malignant melanoma, Dedifferentiated Liposarcoma and Squamous cell carcinoma were seen. Out of the 21 non-neoplastic cases, Chronic pyelonephritis constituted eight cases (38.09%) followed by three cases (14.28%) each of Chronic pyelonephritis with hydronephrosis and Interstitial pyelonephritis with hydronephrosis, two cases (9.52%) of Chronic pyelonephritis and pyonephrosis and nephrolithiasis, one case (4.76%) each of Xanthogranulomatous pyelonephritis and Chronic pyelonephritis with polycystic disease were seen.

CONCLUSION

Chronic pyelonephritis was the most common lesion encountered among non-neoplastic cases and Clear cell type Renal Cell Carcinoma was the most common lesion among the neoplastic cases.

Pattern of Antimicrobials Utilization in Indoor Patients at a Tertiary Care Center

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INTRODUCTION

Drug utilization research as defined by WHO in 1977 is 'the marketing, distribution, prescription, and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences'. Purpose of the study was to develop baseline prescription pattern of antimicrobials for medicine and surgery indoor patients and to evaluate the collected data as per WHO quality indicators for analysis of ADRs and cost of prescription and to provide feedback to the prescribers.

METHODS

This cross sectional, prospective, quantitative, descriptive and analytical type of observational study was conducted over a period of one year. Indoor patients of Medicine and Surgery Department of M B Hospital, Udaipur were included after taking permission from IEC and data was collected using proforma approved by IEC, evaluated and analyzed by using WHO quality indicators.

RESULTS

Ceftriaxone was the maximally utilized antimicrobial in both in Medicine and Surgery. Costliest antimicrobial prescribed in Medicine was Artesunate (total cost Rs 604.11/- per patient) and in surgery was Meropenem (total cost Rs. 4566.76/- per patient). Cheapest antimicrobial prescribed was Cotrimoxazole oral in medicine indoor (cost Rs. 4.98/-per patient), and Clarithromycin oral (Rs 8.8/- per patient) in surgical indoor. In medical and surgical indoor total cost of all the antimicrobials utilized during study duration was Rs. 70822.46/- and 168577.4/- respectively while cost per patient was Rs. 157.38/- and Rs. 374.6/- respectively. In medical and surgical indoor PDD/DDD ratio of Benzathine Penicillin IV was maximum and Acyclovir IV was minimum. In surgical indoor PDD/DDD ratio of Amoxicilline + Clavulanic acid IV was maximum and Amoxicilline + Clavulanic oral was minimum.

CONCLUSION

The study indicates towards polypharmacy and increased PDD/DDD ratio for few of drugs which can be evaluated and utilized to decide rules and regulations by the authority. The study can be expanded by including other departments and private sector.

ESBL Detection among *Escherichia coli* and *Klebsiella pneumoniae* Isolates

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INTRODUCTION

The incidence of extended spectrum beta lactamases (ESBLs) producing strains among clinical isolates has been steadily increasing over the past few years resulting in limitation of therapeutic options available. The purpose of the study was to determine the prevalence, antibiotic susceptibility pattern, percentage of ESBLs producing strains in different samples and treatment alternatives among *Escherichia coli* and *Klebsiella pneumoniae* isolates.

METHODS

Screening and confirmation of ESBLs production by the phenotypic confirmatory (combination disc method) test was done as per the guidelines recommended by CLSI.

RESULTS

Out of total 400 isolates 197 (49.25 %) were found ESBLs producers. Out of 203 *Escherichia coli* isolates 92 (45.32 %) were found ESBLs producers and in 197 *Klebsiella pneumoniae* isolates 97 (49.23%) were found ESBLs producers. ESBLs producing *Escherichia coli* strains were most frequently recovered from urine i.e. 42.39% (39/92) followed by stool 19.56% (18/92), sputum and respiratory tract specimens 15.21% (14/92), pus and other wound discharges 11.95% (11/92), blood 9.78% (9/92), high vaginal swab 1.08% (1/92), and body fluids 0.00% (0/92). ESBLs producing *Klebsiella pneumoniae* strains were most frequently recovered from pus and other wound discharges 43.29% (42/97), followed by sputum and respiratory tract specimens 21.64 % (21/97), blood 17.52% (17/97), stool 7.21% (07/97), urine 05.15% (05/97), body fluids 1.07% (01/97), and high vaginal swab 1.03% (01/97).

CONCLUSION

The antimicrobial resistance was significantly higher in ESBLs producer isolates, Imipenem was most sensitive followed by Amikacin, Nitrofurantoin, Gentamicin and Tetracycline. Least sensitive antibiotic were cephalosporins (Cefotaxime, Ceftazidime, Ceftriaxone). For treatment of patients infected with ESBLs producing strains, there should be selected effective antibiotics among Carbapenems like Imipenem or Beta-lactam + beta lactamase inhibitor combinations.

Spectrum of Various Lesions in Cervical Biopsies in North West Rajasthan: A Prospective Histopathological Study

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INTRODUCTION

In India, 90,000 of new cases of cervical cancer occur every year. Cancer that develops in the ecto-cervix is usually squamous cell carcinoma, and around 80- 90% of cervical cancer cases (more than 90% in India) are of this type. Histopathological studies of the cervix along with clinical correlation are very important for early diagnosis in cervical diseases. The aim of the was to establish a specific spectrum of various types of neoplastic and non-neoplastic cervical lesions on the basis of their histopathological features in North West Rajasthan.

METHODS

In this study we included 300 patients were included irrespective of their age, who attended the hospital and cervical biopsies were sent for histopathological examination to the Department of Pathology, S P Medical College and Associated Group of Hospitals, Bikaner.

RESULTS

Histopathological study of various lesions in cervical biopsies in this region showed that 64.7% lesions are neoplastic type and 35.3 % are non- neoplastic type. Highest incidence of non-neoplastic lesions in 41-50 years (33.01%) and neoplastic lesions 41-50 years (35.05 %). Cervical lesions are most common in Hindu community (79 %), Sikhs were second to Hindus (6.33 %) and Muslims have least incidence (6.33%). In non-neoplastic pathology, most common is chronic non-specific cervicitis (46.22 %). Endocervical polyp is most common type of polyp (71.17 %). Squamous cell carcinoma has the highest incidence (87.62%) among various neoplastic lesions and moderately differentiated squamous cell carcinoma is most common type of squamous cell carcinoma (92.35%).

CONCLUSION

Being a developing state in North West Rajasthan, females with early, mid and middle age are prone to develop cervical lesions and parity is very important factor contributing in different aspects of this spectrum of disease. Early screening and timely diagnosis may change the quality of life and can add years to life with a combined effort of a gynecologist and a pathologist.

Detection of G6PD Deficiency Amongst Healthy Blood Donors

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INTRODUCTION

Glucose 6-phosphate Dehydrogenase (G6PD) deficiency is the most common erythrocyte enzymopathy, being present in more than 400 million people worldwide. Blood donation from G6PD deficient donors might alter the quality of the donated blood during processing, storage or in the recipient circulatory system. The study was done to detect G6PD deficiency amongst healthy blood donors and to find out the prevalence of G6PD deficiency.

METHODS

A prospective study was carried out on 2012 healthy blood donors from February 2016 to December 2016 in the Department of IHBT, SP Medical College and Associated Group of Hospitals, Bikaner. Blood donors were screened for G6PD deficiency using methemoglobin reduction test (MRT).

RESULTS

Out of total 2012 healthy blood donors, 133(6.6%) donors were found to be G6PD deficient. Prevalence rate observed in the study was within the range of overall prevalence of India (0-37%).

CONCLUSION

Prevalence of 6.6% should be taken as serious concern and further more studies are advised for screening of G6PD in healthy blood donors. As the methaemoglobin reduction test (MRT) used in this study is cost effective and convenient, it can be used as a screening method to identify G6PD deficient blood donors and it can be an aid-on extended medical check up for healthy blood donors which will help to increase the safe and voluntary blood donations.

Role of Mast Cells in Appendicitis

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INTRODUCTION

Acute appendicitis is a common surgical emergency. However, pathogenesis of appendicitis remains poorly understood. Mast cells play an important role in various inflammatory and immune reactions and could be one of the important cell populations responsible for nerve proliferation and hypertrophy in appendicitis. The aims of the study were to identify and quantify the mast cells in surgically resected inflamed appendices, to assess the role of mast cells in the pathogenesis of acute appendicitis and to evaluate the extent of mast cell involvement in appendicitis.

METHODS

150 appendicitis cases were analyzed with routine hematoxyline and eosine staining and other special stains like toluidine blue. The number of mast cells present in ten consecutive high power field was counted by randomly in all the sections with one percent toluidine blue and graded the mast cells.

RESULTS

Among 150 cases, the acute appendicitis cases with higher mast cell count were 55 in number, acute eosinophilic appendicitis cases were 11 and 84 cases of chronic appendicitis with highest mast cell count.

CONCLUSION

Mast cell count was higher in acute appendicitis indicating immunological and non immunological injury and was highest in chronic appendicitis, indicating growth interaction between mast cells, nerves and fibrosis. The observations support the allergic theory of appendicitis rather than the obstructive theory.

An Epidemiological Study of Influenza A H1N1 (Swine Flu)

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INTRODUCTION

An outbreak of Influenza A H1N1 occurred in the Southern Rajasthan region of India in year 2015. We aimed to analyze the epidemiological profile of all H1N1 cases (swine flu) with reference to age, sex and time wise distribution of morbidity and mortality. The objectives of the study were to estimate the burden of these cases, socio-demographic profile, risk factors associated and to study the outcome, morbidity & mortality profile among confirmed cases of swine flu at M B Hospital, Udaipur

METHODS

This cross-sectional, descriptive, hospital based study was conducted in swine flu outdoor and indoor at M B Hospital, Udaipur from January 2015 to December 2015. A total of 3837 patients attended swine flu outdoor, out of them 1247 were subjected to rtPCR. Data was analyzed statistically.

RESULTS

Out of total enrolled patients, 491(39.37%) reported positive; among which 42.57% were male and 57.43% were female. Among total positive cases, 62 (12.63%) resulted in death. Positive cases were more from rural areas similarly deaths were more in patients of rural areas. Higher case fatality rate was observed in pregnant women (24.14%) as compared to non pregnant women (10.67%). Mean duration between onset of symptom to admission to hospital was more in deceased patients (5.65 ± 2.20) than survived and the differences were statistically significant ($p < 0.001$). Confirmed patients and deaths were at peak in winter months.

CONCLUSION

Age and sex differences, residential background, pregnancy status and lag period in hospitalization seems to be important contributors towards fatality in Influenza A H1N1 cases.