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128-Slice Computed Tomography Evaluation of Takayasu Arteritis in South Punjab (Pakistan) Initial Experience at CPEIC, Multan

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Background: Takayasu arteritis (TA) alternatively known as a pulseless disease and aortic arch syndrome is an inflammatory and stenotic disease of medium- and large-sized arteries. Extensive research has revealed the prevalence of TA in Asia among teenagers and adults, resulting in consistent high blood pressure. In this study, selected patients with the prevalence of TA suspected on color Doppler ultrasound study were further evaluated with 128-slice computed tomography (CT) angiography. **Methods:** It is a prospective study consisting of 4012 patients who were referred to Radiology Department of Chaudhary Pervaiz Ellahi Institute of Cardiology, Multan (Pakistan) (which is a hub of vascular diseases), for 1 year. All patients underwent color Doppler ultrasound study for limb ischemia, renovascular hypertension, and carotid Doppler ultrasound for stroke-like symptoms, followed by CT angiography using 128-slice CT scan and low-osmolar contrast media. Maximum intensity projection, multiplanar reconstruction, and three-dimensional reconstruction of image data were done. **Results:** A total of 4012 patients were studied. Among them, six patients were diagnosed with the disease (TA) with a male:female ratio of 1:5. **Conclusion:** CT angiography is a very useful and reliable method of diagnosing TA, assessing disease activity, and a guide to treatment and follow-up.

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A Retrospective Comparative Study of Four Different Transarterial Regimens for Treatment of Hepatocellular Carcinoma

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Background: Transarterial chemoembolization (TACE) is known to be a valid palliative measure in treating hepatocellular carcinoma (HCC). Indeed, it is considered as the first option in treating patients with unresectable multinodular HCC in the absence of portal vein thrombosis or invasion with preserved liver function. Furthermore, chemoembolization is also used as an adjuvant therapy to prevent tumor progression or to downstage the tumor to meet the transplantation criteria. Despite that, there is no standardized treatment regimen for chemoembolization. This single-center retrospective study aims to compare four different regimens of TACE for the treatment of unresectable HCC to assess tumor response, time to progression (TTP), and median survival. **Methods:** Ninety-eight TACE procedures on 88 patients with unresectable HCC (77 males and 11 females; mean age 68.4 years) performed between June 2007 and July 2014 were included.

Four groups based on the regimen were compared. This includes 10 patients treated with I-131-lipiodol combined with cisplatin and doxorubicin (Group A), 15 patients treated with cisplatin and doxorubicin mixed with lipiodol (Group B), 53 patients treated with doxorubicin mixed with lipiodol (Group C), and 10 patients treated with doxorubicin-eluting beads (DEB-TACE) (Group D). The outcome measures reviewed were imaging response, TTP, technical success, and median survival. The tumor measurements were analyzed based on mRECIST criteria. Statistical analysis was performed using ANOVA and *post hoc* Tukey's test. **Results:** There is no statistically significant difference in the baseline tumor size among the study groups ($P = 0.67$): (Group A: mean 7.9 cm, median 6.3 cm; Group B: mean 6.1 cm, median 5.6 cm; Group C: mean 6.2 cm, median 5.7 cm; and Group D: mean 6.0 cm, median 4.7 cm). A complete response to the treatment was slightly higher in Groups B and C (15% and 13%, respectively) compared to Groups A and D (10%). The median TTP was shorter in Group A (4 months) compared to (6 months) Groups B, C, and D. There is no significant difference in median survival among the study groups ($P = 0.96$). **Conclusion:** Based on our review, there is no significant difference in imaging response, TTP, and survival between single agent TACE, dual agent TACE, radiochemoembolization with dual agents, and DEB-TACE.

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Evaluation of Prostatic Lesions by Transrectal Ultrasound, Color Doppler, and the Histopathological Correlation

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Background: Prostate cancer is the most common malignancy in men in the United States, with approximately 192,280 cases diagnosed yearly. Globally too, prostate cancer happens to be the second-most common cancer among males, with annual incidence reaching up to 679,060 cases. The diagnosis and treatment of prostate cancer are very challenging. The current methods of screening for prostate cancer include measuring serum prostate-specific antigen levels (PSA), digital rectal examinations (DREs), and transrectal ultrasound (TRUS). A color Doppler ultrasound, because of its ability to effectively visualize vascular changes, provides a better diagnostic as well as prognostic value. Prostate cancer, in common with many other tumors, shows increased angiogenesis, resulting in increased microvessel density. Increased color Doppler blood flow tends to indicate more aggressive tumors with higher Gleason grades as well as a higher risk of recurrence. Due to the benefits of a color Doppler test, it is gaining popularity as a diagnostic modality for differentiating between various prostatic lesions with a reported benefit over the conventionally used TRUS approach. **Methods:** The study was carried out on a total of 40 male patients, aged 50–80 years, with serum PSA levels of 4–10 ng/ml in the absence of urinary tract infections, acute urinary retention, acute prostatitis, or recent catheterization and having a hard, enlarged nodular prostate on DRE. The project was approved by the institutional ethics committee. Informed consent was obtained from all the participants. All suspected patients attending the surgical outpatient/inpatient of our institution who fulfilled the inclusion criteria were examined in the left lateral decubitus, knee-chest

position, and were subjected to DRE. TRUS with a color Doppler for the detection of prostatic lesion using G. E. LOGIQ 5 PRO ultrasound color Doppler machine (with a TRUS probe [6–10 MHz]). Later, a TRUS-guided biopsy was performed using an 18G biopsy gun to confirm the radiological diagnosis. **Results:** Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 21.0 (IBM, New York, USA). A Chi-square test and a “*t*” test of independent samples were used to compare the data. $P < 0.05$ indicated a significant association. Diagnostic efficacy was expressed in terms of sensitivity, specificity, positive predictive value, negative predictive value (NPV), and accuracy. The age of patients ranged from 51 to 77 years. The mean age of patients was 63.80 ± 6.76 years. A majority of the patients were <65 years of age (65%); on DRE, a total of 17 (42.5%) patients had induration while 23 (57.5%) had nodular lesions. PSA values ranged from 5.8 to 9.8 ng/ml. Exactly half of the patients had PSA <8 ng/ml; histopathologically, 13 (32.5%) cases were malignant. On TRUS evaluation, a total of 10 (25%) cases were malignant. TRUS findings combined with color Doppler vascularity findings diagnosed malignancy in 15 (37.5%) cases. **Conclusion:** The findings of the present study showed that TRUS with color Doppler flowmetry can play an important role in the detection of prostate malignancy, with high sensitivity as well as specificity. The high NPV, as observed in the present study, could avoid unnecessary diagnostic invasive intervention. In the present study, TRUS diagnosis established 30 (75%) cases as benign and 10 (25%) cases as malignant, showing the rate of cancer detection to be close to that diagnosed through histopathology. Among different TRUS characteristics, irregular shape, heterogeneous echotexture, loss of differentiation between the peripheral and internal zones, increased mean prostate weight, and capsular invasion were found to be significantly associated with malignancy.

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Challenges in Carotid Artery Stenting

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Background: Carotid artery disease is a significant cause of acute ischemic stroke and transient ischemic stroke. Significant carotid artery diseases are treated by carotid endarterectomy (CEA) or carotid artery stenting (CAS). **Methods:** We are presenting some challenging situations where patients with significant carotid artery diseases are not suitable/willing for surgery (CEA) and the anatomy too is challenging for CAS. Also presenting some seemingly straight looking CAS but pose serious intraprocedural challenges. **Results:** We could deal with the challenging situations with innovation and persistence. **Conclusion:** Understanding the nature of the carotid plaque is of paramount importance in doing a successful CAS. Imaging of the entire access is a must to carry out a successful CAS in most situations.

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Assessing Readiness for Acute Stroke Mechanical Thrombectomy Service

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Background: Stroke is a leading cause of mortality and serious long-term disability. Recently published trials prove the superiority of endovascular mechanical thrombectomy (EMT) over best medical therapy, for selected patients with acute ischemic stroke. There is almost consensus that for optimum outcomes, onset-to-groin puncture time should be <6 h. The aim of our work is to assess our readiness to implement EMT, by evaluating aspects of delay in dealing with such time-critical group of patients. **Methods:** A prospective random sample of 20 patients presenting to our emergency department with acute stroke was selected. Total elapsed time from symptoms onset until release of emergency radiology report was measured and analyzed into five subcategories: from symptoms onset until decision to seek medical care (termed “awareness”); trip from home to hospital (“ambulance”); time spent in emergency room until arrival to radiology (“ER”); waiting time in radiology reception (“wait”); time until emergency radiology report release (“report”). **Results:** 2/20 (10%) were wake-up strokes, the other 18 cases had median time from onset to radiological diagnosis by CT, of 4:59:00. Previously described delay intervals are summarized in ascending order in this table. Median time (hours) (“ambulance” 02:17:30; “awareness” 01:07:30; “ER” 00:55:00; “report” 00:23:00; “wait” 00:19:00; total 05:02:00). **Conclusion:** Assuming the interventionist reaches the hospital within 1 h, half of thrombectomy candidates can be started within the 6-h interval. There is an urgent need for mass media campaigns raising awareness regarding early manifestations of stroke. Emergency physicians should be educated about EMT, as most of them only knew about medical thrombolysis, whose window is only 4.5 h. Such unawareness can lead to slow management of patients presented beyond 4.5 h. A porter must be dedicated only for the transport of acute stroke patients. Radiology reception staff should be educated about the emergent nature of acute stroke-related scans and prioritize accordingly.

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Efficacy of Computer-Aided Detection of Thyroid Nodule in Reduction of Unnecessary Fine Needle Aspiration Cytologies Along with Role of Radiofrequency Ablation in Thyroid Nodule Treatment

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Background: AmCAD is a window-based computer-aided detection (CAD) device intended to assist the medical professionals for categorization of thyroid nodules through ultrasound. CAD is an objective way to determine which thyroid nodules need to have fine needle aspiration cytology (FNAC) and helping to reduce FNAC frequency in the thyroid. It saves workload, and there is no interobserver variation. Nodular thyroid disease is very frequent in clinical practice in Pakistan and worldwide. It is associated with increased risk of thyroid cancer and hyperfunction. In this paper, we propose a novel method for CAD of thyroid nodules in ultrasound (US) images followed by treatment if possible by Radiofrequency ablation (RFA). This novel method was experimentally evaluated using US images acquired from 24 patients. The results show that the proposed method achieves more accurate delineation of the