P045 Diagnostic imaging: an essential method of diagnosing Cushing's syndrome and disease

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Background: Cushing's syndrome (CS), was named after Harvey Cushing (1869-1939), a neurosurgeon who during a case study proved his hypothetical theory that hypoadrenalism was linked, "to minute basophilic adenomas of the pituitary gland," the pluriglandular syndrome became known as CS. His main aims were to improve the survival rates of patients after complex neurosurgical procedures for intracranial tumours and introduced x-ray imaging for the diagnosis of brain tumours. Today's technological advancements in diagnostic imaging have proved to be a vital tool in testing the differential diagnosis and in making a definitive diagnosis.
Methods: As part of a Quality-of-Life 2020 survey on 86 CS members of the Pituitary Foundation UK, 3 questions asked which type of diagnostic imaging examination(s), that they had undergone prior to their diagnosis. The objective being to ascertain, if diagnostic imaging continues to remain vitally important for the diagnosis of CS and Cushing's disease (CD).
Results: 66% of the study population had a CT scan to ascertain the presence of adrenal adenoma(s), and 62% had an MRI to confirm pituitary adenomas. When asked if they had been referred for any other type of diagnostic examinations/procedures for their CS diagnosis, 84% named 15 other types of imaging examinations, (mean = 2, min= 1, max=6). The collective number of examinations was 185.
Conclusion: Results from this survey suggested that diagnostic imaging is one of the 2 essential methods of diagnosing CS and CD, the other is biochemical testing.

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OBS & GYNAE POSTER PRESENTATIONS

P046 Apparent Diffusion Coefficient and texture may help predict the severity of placental invasion

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Background: Placenta accreta spectrum (PAS) causes 7% of maternal mortality (1). Diagnosis is still not definitive. This raises the need for a complimentary approach to assess placental invasion. Diffusion and textural analysis have shown a correlation with some types of tumors (2). The use of radiomics can give a clue into the microstructural feature as significant results were found between normal and abnormal placental disorders (1). Objectives: to evaluate the utilization of ADC and texture analysis in PAS diagnosis.
Methods: A retrospective review of 153 cases. ADC values were obtained from the area above the bladder and the entire placenta on a midline sagittal image by 2 readers. Heterogeneity of the placenta and placental dark bands were also noted. Pathological diagnosis was obtained from medical records. Texture study of a sample size of 33 images was also analysed using radiomics program (LIFEx) by a single reader. Texture and matched ADC results were then analysed.
Results: Total placental ADC is higher in abnormally invaded placentas. The degree of placental invasion showed a correlation with total placental texture. Normal placentas had lower values than invaded placentas. Texture grey level co-occurrence matrix (GLCM)- homogeneity showed an increment level proportional to the degree of placental invasion. Bland-Altman plot showed that regional placental ADC showed an agreement with no potential bias between the 2 readers.
Conclusion: ADC measurements have to be complimented with other MRI signs of placental invasion and texture to aid confidence in the imaging diagnosis.

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P047 Inter-fractional uterus motion during radiotherapy for cervix cancer after ultrasound confirmation of bladder volume

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Background: Uterus motion is linked to changes in bladder volume during radiotherapy for cervix cancer. Ultrasound is used in our department to confirm bladder volume is within 100ml of planned volume before each treatment. The inter-fractional movement of the uterine fundus in a group of patients who had ultrasound to confirm adequate bladder volume before treatment was compared to a group of patients who were previously treated without

ultrasound.
Methods: 77 cone-beam computed tomography (CBCT) images from 11 patients with cervical cancer who had undergone ultrasound scans prior to radiotherapy (group A) and a group of 11 patients who had been previously treated without ultrasound (group B) were fused with the planning CT scans. The change in uterus fundus position on CBCT scans compared to the planning CT scans was quantified. Linear regression was used for comparison.
Results: The mean and range of movement of the uterine fundus in group A are smaller but not significantly different than group B (superior / inferior : group A: 0.01 to 1.98 cm, mean 0.54 cm, group B 0.02 cm to 3.61 cm, mean 0.71 cm; anterior / posterior group A 0 cm to 2.50 cm, mean 0.62 cm; group B 0.03 cm to 2.59 cm, mean 0.72 cm). Both groups showed significant increase in uterus motion over the course of radiotherapy.
Conclusions: Confirming bladder size is similar to planned with ultrasound has resulted in a small reduction of uterus movement. Further work is required to investigate other methods of managing uterus motion.
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BREAST POSTER PRESENTATIONS

P048 An audit of the chabner bra breast immobilisation device for large breasted patients who require external breast radiotherapy treatment

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Introduction: Large breasts commonly present both technical and skin toxicity radiotherapy challenges and there is currently no standardized breast immobilisation practice in the UK. Specifically designed radiotherapy bra's have recently been developed to address such challenges whilst improving patient experience and dignity.
Method: To audit the impact of the Chabner bra (CB) on radiotherapy breast immobilisation for large breasted patients with greater than 1.5cm breast tissue overhang in any direction. The following quantitative metrics were collected for 15 patients with no immobilisation device and 15 patients with the CB: average field length, reproducibility and skin toxicity. For patients wearing the CB, 2 additional CT scans were scheduled (Day 0 and between fractions 10-15).
Results: Average field length was 2.1cm less for those patients who received radiotherapy with the CB. When compared to the planning CT scan, the CT day 0 average variation was 0.7cm which increased to 0.8cm at the CT fraction 10-15. Twice as many verification images were taken for patients with the CB. Average discrepancy of 0.57cm and 0.87cm was measured for patients without and with the CB respectively. RTOG2.5 skin toxicity was recorded in 3 patients without the CB and 4 patients with the CB.
Conclusion: The use of a specifically designed radiotherapy bra can significantly reduce field length without increasing skin toxicity. Whilst reproducibility with the CB was slightly inferior, it still met local imaging protocols. Inadequate CB staff training could have attributed to the variations in reproducibility.
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