



Abstracts

31st European Congress of Pathology

Oral Free Paper Sessions

Sunday, 8 September 2019, 08:30 - 12:00, Galliéni 5
OFP-01 | Joint Session: Uropathology / Nephropathology

OFP-01-001

The influence of the presence of intraductal carcinoma of the prostate on the grade group system's prognostic performance

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Background & Objectives: Although the presence of intraductal carcinoma of the prostate (IDC-P) influences biochemical failure in radical prostatectomy patients, no data are available regarding the impact of its integration into the classification Grade Group system. Thus, the aim of this study was to enhance the utility of the Grade Group (GG) system by integrating the presence of IDC-P.

Methods: This study was a retrospective evaluation of 1019 patients with prostate cancer who underwent radical prostatectomy between 2005 and 2013 without neoadjuvant or adjuvant therapy. Data on age, prostate-specific antigen (PSA) level at diagnosis, pathological T stage (pT), the presence of Gleason pattern 5 (GP5), the presence of IDC-P, and surgical margin status were analysed to predict PSA recurrence after prostatectomy.

Results: IDC-P was detected in 157 patients (15.4%). GGs were as follows: GG1 without IDC-P, n=163; GG2 without IDC-P, n=470; GG3 without IDC-P, n=160; GG4 without IDC-P, n=27; GG5 without IDC-P, n=42; any GG with IDC-P, [n=157; GG 2 (n=29); GG3 (n=60); GG4 (n=13); GG5 (n=55)]. Any GG with IDC-P showed a significantly worse prognosis than any other GG without IDC-P ($p < 0.0001$). In a multivariate analysis, integration of the IDC-P into the GGs was significant prognostic predictors ($P < 0.0001$).

Conclusion: Integrating the presence of IDC-P into the GG system will result in more accurate predictions of patient outcome.

OFP-01-002

Distinct genetic alterations and luminal molecular subtype in nested variant of urothelial carcinoma

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Background & Objectives: Nested variant of urothelial carcinoma (NVUC) is rare and only few small series exist. Molecular characteristics and the classifying marker profile as well as therapeutic targets of this specific variant are mostly unknown. Aim of this study was to characterise NVUC on the molecular level in one of the largest cohorts to date. In addition, we applied an immunohistochemical marker panel in order to define the molecular subtype of this variant.

Methods: 60 NVUC cases were collected from different departments. *TERT* promoter mutation analysis was carried out in all samples using SNaPshot analysis. Target sequencing of 48 cancer related genes by Next Generation Sequencing (NGS) analysis was performed in a subset of 26 cases. Immunohistochemical markers CD44, CK5, CK14, EGFR, p63, FOXA1, GATA3, CD24 und CK20 were used to elucidate the molecular subtype.

Results: A total of 62.5% of NVUC cases harbored a mutation of the *TERT* promoter. Additionally, *TP53* and *JAK3* were among the most frequently mutated genes identified by NGS analysis. Subtyping revealed that all NVUC express luminal markers such as CD24, FOXA1, GATA3 and CK20.

Conclusion: Summarized, NVUC belong to the luminal molecular subtype. Moreover, a subset of NVUC seems to be characterised by mutations of the Wnt- and inflammatory pathway, including *JAK3* mutations, indicating a different biological background compared to conventional urothelial bladder cancer.

OFP-01-003

A new auto-annotation method and machine learning strategy for detection and annotation of cancer areas in prostate biopsies

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Background & Objectives: Prostate cancer is one of the most diagnosed cancer forms and a leading cause of cancer-related death in males. The examination and Gleason scoring of prostate biopsies is however a major bottleneck in the pathology workflow, and studies have shown that the inter-observer variability in scoring is high. For increasing accuracy and speeding up the decision process, there is a high demand for implementation of an image analysis tool to support pathologists. The aim of the present investigation was to develop a strategy for un-biased, specific

the skeletal remains studied during the exploration of the Medici tombs in the Basilica of San Lorenzo in Florence.

Results: The analysis of the autopsic reports offers important direct information on the autopsy practices performed by court surgeons of the members of an aristocratic class in a period comprised between the 16th and the first half of the 18th century, and allows in some cases also to propose a retrospective diagnosis on the diseases that afflicted the Medici.

Conclusion: The analysis of the documents relating to the autopsy investigations proves to be of great interest and importance. These archives are in fact a very valuable source of information about the state of health of past populations and reveal which diseases were present and how they were treated.

PS-23-005

Exhumation and anthropological study of the skeletal remains attributed to Liutprand, King of the Longobards (690 ca AD-744 AD)

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Background & Objectives: Liutprand, one of the greatest Longobard sovereign, was born in the early 90s of the 7th century and died in 744 at the age of about 55 years. According to the *Historia Longobardorum* of Paolo Diacono, he was King of Italy from 712 to 744.

Methods: We performed the exhumation and the anthropological study on the skeletal remains attributed to Liutprand in the Church of San Pietro in Ciel d'oro (Pavia, Italy). We selected bone fragments and two teeth in order to make imaging studies (CT and RX), 14C dating, chemical and molecular analyses.

Results: Anthropological examination highlighted the presence of bones attributable to at least three individuals. Most of the remains belonged to a robust male individual with an age to death between 40 and 50 years. We found a left tibia with the diaphysis completely enlarged due to a severe form of osteomyelitis. Bone repair is evident and the presence of a circular depression with a diameter of about 10 mm could represent the trace left by a pointed object that caused the perforation of the bone and the subsequent infection. 14C dating provide a range from 430 to 640 for the first subject, 600-770 for the second and 530-670 for the last male. Isotopic data show a rather high nutritional status for the time.

Conclusion: Currently it is not possible to define the identity of the three individuals for lack of archaeological data and for the fragmentary nature of the bones. The age of the subjects, the robust constitution and the nutritional data suggest a belonging to a middle-high social class devoted to war activity. Future molecular studies may reveal a degree of kinship between the individuals and clarify the identity of the subjects.

PS-23-006

The short history of non-existing procedure - teratological autopsy

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Background & Objectives: The objective was to describe the type of autopsy, which though performed since ages, never had been

distinguished as a separate entity and properly appreciated. Teratology as a term was introduced by Etienne Geoffroy Saint-Hilaire (1772-1844) and Isidore Geoffroy Saint-Hilaire (1805-1861) in the 19th century, but first images of deformed fetuses and newborns date around 15.000 years back. Hippocrates was one of the first trying to find the mechanisms and causes of different deformations. Despite all this long history the first noted autopsy concluded with a post mortem report dates from 1533. For several centuries it was rather performed as a curiosity than real anatomical and pathological procedure for medical and scientific research. Even today with subspecialties as molecular or neuropathological autopsy it is still put aside, though the demands to perform it, especially in most rare cases, are extremely high.

Methods: We performed critical review of the available articles and researches published in the databases (PubMed, Researchgate and Academia.edu) focusing on perinatal autopsies with reported deformations and malformations dating from the ancient to present times. The literature was confronted with personal experience of researchers from our team.

Results: The vast range of variations that can be found during the perinatal autopsy with deformations requires skills and knowledge far from the usual. In some cases the procedures are performed on such scale that magnifier may be applied. The post mortem reports are connected with perinatal counselling, but what is more important with consecutive decisions about parenting. Therefore it is even more appropriate to quote "Hic est locus ubi mors gaudet succurrere vitae" - this is the place (or case) where death gladly helps the living. What is more - it helps those who just might have the chance to be born in the nearest future.

Conclusion: The teratological autopsy should be distinguished as a separate subtype of post mortem examination with full stress on the technical skill demands and proper preparation to it.

PS-23-007

Unexpected heart dwellers

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Background & Objectives: Heart involvement by *Echinococcus* is rare (0.02-2% or 0.5-3% in the worldwide literature), although – when present – may be responsible for relevant morbidity or mortality (namely arrhythmias, anaphylactic shock, sudden death). The authors present a specimen from an historical museum.

Methods: A liquid-fixed heart specimen from a 19th century European Pathology Museum was analysed.

Results: Multiple *Hydatid Cysts* were observed, involving / damaging various cardiac structures.

Conclusion: This presentation testify a type of zoonotic pathology in this European country in the 19th century and highlight the teaching mission of University Museums, since with globalization and interexchange programs, medical students/residents/young doctors may face diverse disease contexts – in their home country or abroad –, namely unexpected parasitosis.

PS-23-008

History of teaching pathological anatomy (pathology) at Moscow State University

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Background & Objectives: Pathology is a fundamental discipline that has traditionally been the bridge between science and medicine.

Pathology teaching is important discipline of the training of qualified MD specialists which is traditionally carried out in the departments of pathology of the Medical Faculties of classical Universities.

Methods: The collection of history data was carried out by archival search.

Results: The Moscow University was founded in 1755. Teaching of pathology began in 1769 (Veniaminov P.D.). Further development Pathology in Russia is associated with Polunin A.I., Klein I.F., Abrikosov A.I. In 1930, Medical Faculty was transformed into the 1st Moscow Medical Institute and to which university clinical campus builded in 1897 was transferred. Medical education in Moscow University was restored 62 years later (1992). Currently, a course of pathological anatomy is taught at the University Clinic on basis of Clinical Pathology Department.

Conclusion: The University Clinic has qualified specialists and modern equipment. Biopsy and surgical materials, modern histological, histochemical, immunohistochemical, molecular, genetic, ultrastructural methods are widely used both for education and science purposes which ensures the implementation of the unity of education, science and clinical practice.

PS-23-009

The history of research of placenta

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Background & Objectives: The history of research of placenta is important aspect in obstetrics

Methods: Work with archive, materials, textbooks and monographs

Results: The first mention of placenta was revealed in archives of Egyptian pharaoh Amenhotep IV. T. Langhans explored histological structure of placenta and the microscopic period of placenta's research was begun. Active research of this organ was in the end of XIX century (Schatz F., V. Becker Bar P., Wilson T.). The ultramicroscopic period in the research of placenta begun in the second part of XX century. The separate science called "placentology" was formed.

Conclusion: The study of placenta allows to make a basis for correct diagnosis, correction and treatment of pathological conditions in obstetrics for preservation.

PS-23-010

Renal stone disease in an XVIII century mummy from Popoli, central Italy

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Background & Objectives: A natural, well-preserved mummy belonging to an anonymous 35-40 years old male was found in a crypt beneath the Church of the Holy Trinity in Popoli, central Italy. Fine clothes and burial location suggested high social status and an important role in the church community. Probably, he was a nobleman, member of the congregation of the Holy Trinity. Artifacts helped in dating back the individual to the early 1800's.

Methods: The body was secured to a cardboard layer by a plastic film and recovered from the crypt to be submitted to visual inspection, X-ray

examination, and CT scanning. A left abdominal stone was removed by videoendoscopy and investigated with binocular stereomicroscopy, microcomputed tomography, scanning electron microscopy with microanalysis, and X-ray diffraction analysis.

Results: The ovoidal mass measured 22x16x15 mm. External surface showed small superficial spherical buds, whereas internal structure detail revealed a central nucleus of sharp-edged crystals and concentric laminations of similar density values. Chemical elements were: C, O, N, Ca, P, K, S, Cl, Na with different distribution within inner and outer surfaces of the stone. Compositional analysis revealed calcium oxalate monohydrate (whewellite) (90%) and calcium phosphate (hydroxylapatite) (10%).

Conclusion: The stone composition supports the hypothesis of high animal protein intake by the subject, confirming that he belonged to high social class. The co-existence of significant dental pathologies, without major arthritic changes confirmed a life free from extensive labor. The cause of death could be related to infectious complications of renal urolithiasis and hydronephrosis.

Wednesday, 11 September 2019, 09:30 - 10:30, Agora 3

PS-24 | Pathology in Favour of Developing Countries

PS-24-001

Comparison of HER2 status in breast cancer using fluorescent in situ hybridisation and immunohistochemistry at National Hospital Abuja, Nigeria - a case for alternate testing in developing countries

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Background & Objectives: Breast cancer patients that are positive for *HER2* will benefit from targeted therapy. Most centres in Nigeria utilise only immunohistochemistry (IHC) in determining *HER2* status, as it is cheaper, quicker and more widely available. Cases that are IHC equivocal present a treatment dilemma, as there is currently no centre in the country that provides alternate test to assess these tumours. The objective is to compare *HER2* expression by IHC with *HER2* gene amplification by fluorescence ISH (FISH).

Methods: Clinical information was obtained from request form. Haematoxylin and Eosin stained slides were evaluated for histologic type and tumour grade. Dual probe FISH and standard *HER2* IHC were performed on formalin fixed paraffin embedded tissue blocks at a UK laboratory and scored as per UK guidelines.

Results: Immunohistochemistry was done on 91 samples. The *HER2* +3 tumours accounted for 10% (n=9), the +2 (equivocal) tumours were 11% (n=10) and the negative 0/+1 tumours were 79% (n=72). FISH was done on 20 samples (19 +3 and +2 tumours by immunohistochemistry and 1 negative sample), however the test failed in 5 cases. By FISH, 74% (n=11) of the tumours were amplified, with 83% (n=5) of the IHC +3 cases and 75% (n=6) of the +2 IHC tumours showing gene amplification.

Conclusion: This study shows that by FISH, a significant percentage of equivocal cases on IHC had gene amplification and these cases should benefit from anti-*HER2* therapy. Further work into improving the pre-analytical factors such as fixation is needed to minimise the test failure rate.

PS-24-002

Pathology services in a low resource setting: University of Abuja Teaching Hospital, Abuja, Nigeria experience

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