Abstracts of the contributions
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Scanning Electron Microscopic Study on the Cyclic Goat Uterus With Special Reference to the Microvascular Architecture of the Uterine Caruncles

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Abstract

The present study aimed to highlight the morphological characteristics of the goat uterus during estrous with special attention to the microvascular architecture of the uterine caruncles. For this reason uteri of 13 adult nuliparous goats during estrous cycle were examined grossly, and then small pieces from its horns, body and cervix were fixed in 5 % glutaraldehyde for scanning electron microscopy of the endometrial surface. The vascular casts were prepared from two uteri during estrus by injection of liquid plastic of 3 components, catalyst, mercox and methylmethacrylate through the uterine arteries. The uterine horn was about 12 cm long and the cranial third of each horn was coiled and free from uterine caruncles. The uterine caruncles were about 136 ± 10 in number and irregular quadrilateral in shape. They were arranged regularly in four rows in the horns but irregularly distributed in the body. The large uterine caruncles were found opposite to the mesometrial aspect of the caudal third of the uterine horn. The length of the body of the uterus was 2 cm and that of the cervix was 2.5 cm. The latter contained 4 transverse mucosal folds. The horns and the body of the uterus were covered mainly by polygonal microvillous cells but the cervix contained microvillous and ciliated cells. Uterine gland openings were demonstrated in the caruncular and intercaruncular regions. Apical blebs and few ciliated cells at the gland mouths were seen only during estrus in the intercaruncular regions. The uterus of goats received its arterial blood through three spiral arteries, namely the uterine branch of the ovarian artery, the uterine artery of the internal iliac artery and the uterine branch of the urogenital artery, and drained via three homonymous veins. At the base of the caruncle the arteries and the veins broke up into straight vessels, arterioles and venules, to constitute wide open meshwork of highly crocked capillaries. The arterioles and venules supplied the subepithelial capillary plexus with efficient flow of arterial and venous blood, providing condition for rapid-transport of nutrients. This pattern of vasculature might be needed in those animals of short-gestation period and multiple twins.

Histological, Ultrastructural and Histochemical Study on the Postnatal Development of the Stomach Fundic Region in Male Rabbits

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Abstract

Light and electron microscopic examinations have been conducted on the mucosa of the fundic region in 50 Blanc de Bouscat male rabbits of different ages. The ages varied between 0-30 days. The histometrical measurements of the thickness of the fundic mucosa and length of the gastric pits were studied in 18 rabbits of different ages. The mucosa of the fundic region has different shapes in the different age groups, specially in the length of the folds and the depth of the pits which decreased toward the base of the mucosal folds. The histology of the surface epithelial cells, parietal cells and chief cells of the gastric glands were studied. The muscularis mucosa was arranged into inner circular layer at 0-day of age, but an additional outer longitudinal layer appeared in older age groups. The epithelial cells contained apical microvilli, smooth and rough endoplasmic reticulum, free ribosomes, elongated nucleus, secretory granules, mitochondria and electron dense material. Cells with round secretory granules of different size, concentrated beneath and lateral to the nucleus, were observed in all age

groups. Mucopolysaccharide and glycogen were examined in the fundic region of the stomach, in rabbits of different ages. The result showed varying degrees of positive reaction to PAS diastase resistant material and diastase-digested material in the stomach fundic region.

Histological, Ultrastructural and Histochemical Study on the Postnatal Development of the Small Intestine in Male Rabbits

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Abstract

Histilogical, ultrastructural and histochemical studies were conducted on the small intestine of 50 Blanc de Bouscat male rabbits; the age varied between 0-30 days. The result showed that the age has a pronounced effect on the shape and length of the intestinal villi of the small intestine. The mucosa of the small intestine was lined by simple striated columnar epithelium with prominent goblet cells. The crypts opened adjacent to the bases of the villi as simple, branched, tubular invaginations. The mucosa of the small intestine was covered by columnar cells that contained apical microvilli, oval nucleus, dilated cisternae of rough endoplasmic reticulum, Golgi apparatus, vacuoles and electron dense material in all age groups. The crypts showed some epithelial cells with dilated intercellular spaces and contained apical microvilli, mitochondria, vacuoles with electron dense material, rough endoplasmic reticulum and elongated nucleus. There were a few cells with spherical secretory granules of different size above the nucleus and other cells of polymorphic secretory granules of different sizes beneath and lateral to the nucleus. Positive reaction to PAS diastase resistant material and diastase-digested material (glycogen) was clearly seen in the surface and crypts epithelial cells of different ages.

The Lamination and Arterial Blood Supply of the Masseter Muscle in the Donkey

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Abstract

The present study was carried out to investigate the structure of the masseter muscle and its attachment to the skull and the relationships with its arterial blood supply, aiming to give detailed information which may be of help in clinical work and increasing anatomical knowledge for that animal.

Twelve heads of clinically healthy donkeys of different ages and sex were used in the present investigation. Heads were thoroughly flushed with warm (40C) saline solution and injected with 10% formalin solution. Four heads were used in manual dissection to describe the structure and lamination of the masseter muscle. For arterial supply, six specimens were injected with gum milk latex (60%) colored with Rotring Indian ink. Two heads were injected with an eventually mixture of 75 gm red lead oxide in 150 cc latex for radiography.

The results revealed that, in the donkey, the masseter muscle was recognized into proper and improper groups. The proper group includes the first, second superficial, intermediate and deep layers. The improper group consists of maxilo-mandibularis and zygomatico-mandibularis.

Detection of Tryptase in the Camel Skin by Immunohistochemistry Using Monoclonal Mouse Anti-Human Skin Tryptase Antibody.

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Abstract:

Mast cells (MCs), heavily granulated wandering cells found in connective tissues and are abundant beneath epithelial surfaces, play a central role in inflammatory and immediate allergic reactions. Mast cell can be distinguished according to various characteristics: human, bovine, and canine mast cells have been classified according to their protease contents, whereas rodent mast cells have been subtyped by histochemical criteria. Comparisons of mast from different species have therefore resulted in contradictory and confusing opinions on mast cell heterogeneity. Thus, it is essential to obtain species-specific data on mast cell density and heterogeneity. The present study was carried out to elucidate for the first time the presences and crossreactivity of tryptase in the camel cutaneous tissue using human specific anti-tryptase antibody. We were able to detect camel mast cell containing tryptase in the subepidermis and the dermis of camel skin. Therefore, we report the successful use of mouse anti-human skin tryptase antibody in the immunohistochemical analysis of mast cell tryptase in camel.

Cardiac Looping and Formation of the Heart Regions in Japanese Quail Embryo *(Coturnix coturnix)*

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Abstract

In this study the morphological changes of the developing 200 heart tubes and formation of the heart regions in Quail embryos were examined from the first till the fourth day of development. Special dissecting tools were prepared and used for dissecting the embryos, normal histological techniques for the histological study were adopted and the binocular stereomicroscope, inverted microscope and light microscopes were used.

The study proved that the cardiac looping of the Quail embryos, like that of the chick embryos, took 3 stages but occurred earlier: the straight heart tube of the quail was formed at about 24-26 hours of the development. The stage of dextral looping took the period between 26 and 40 hours of the development. The Transformation of the C-shaped heart loop into the S-shaped heart loop started at 39-40 hours and finished at 52-55 hours of the development. The process of cardiac looping was accompanied by formation of the heart regions and followed by positional changes and disappearance of the *Bulbus cordis*.

The results obtained are important for the embryologists using the quail-chick chimera system in the development. Both quail and chick embryos used in this system must be at the comparable not the same ages of the development to avoid the malformations resulted from using the miss ages.

Anatomical Study on the Postnatal Development of the Gastrointestinal Tract in Male Rabbits

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Abstract

This study has been carried out on 48 Blanc de Bouscat male rabbits; their age ranged between 0- 30 days suckled and weaned neonates. External body measurements (body weight, crown rump length and forelimb length) were recorded. The shape and position of the stomach were observed and its weight, volume, and length of lesser and greater curvatures were measured. Also the small and large intestine weight, volume and length were measured. The result showed that the measurements increased with advancing age and decreased under weaning effect. The stomach shape and position were like that of the adult.

Arylhydrocarbon Receptor (AhR) Expression in Bovine Genital Tract During Estrous Cycle and Early Pregnancy

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Abstract

The aryl hydrocarbon receptor (AhR) is a ligand activated transcription factor. The AhR was found in embryos, fetuses and in genital tract tissues of some lab animals and human; However, Its role in reproduction and fertility in different species is still to be elucidated.

By employing immunohistochemistry in the current study, AhR expression was studied in bovine genital organs (ovary, oviduct and uterus) during oestrus cycle (oestrus and diestrus) and preimplantation period. In the ovary; during oestrus, AhR was expressed in the interstitial cells while in diestrus and early pregnancy it was found in luteal and interstitial cells. In the oviduct, AhR was strongly expressed in the luminal epithelium and some connective tissue cells during the early pregnancy. In the uterus, the receptor was always expressed in connective cells and in the endometrial epithelium during diestrus and early pregnancy.

Taken together, AhR was expressed during diestrus and early pregnancy in the oviductal and endometrial epithelium, in addition to corpus luteum. The obtained results points to a relationship between the AhR up regulation and the hormone-induced cellular changes during diestrus and early pregnancy in cows.

perivascular network around the hair follicle complex which developed on this surface.

Light and Scanning Electron Microscopic Studies of the Air Breathing Dendritic Organ in the Sharp Teeth Catfish *(Clarias gariepinus)*

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Abstract

Different fishes have a range of adaptations to facilitate gas exchange in both water and air. The dendritic organ of the sharp tooth catfish (*Clarias gariepinus*) obtained from the River Nile, Egypt was studied. The gross anatomy as well as light and scanning electron microscopic features of the organ was examined. Anatomically, the dendritic organ of the catfish was located in the suprabranchial chamber caudodorsal to the gills. It comprised large and small subsections which stemmed from the second and fourth gill arches respectively. Histologically, the main stems, smaller branches and end bulbs of the organ consisted of a core of elastic cartilage, a vascular layer of connective tissue and an epithelium containing intraepithelial mucous glands. Blood capillaries (channels) were found to originate from the vascular layer and penetrate the

epithelium. Toward the surface, these capillaries dilated and bulged outward due to engorgement with red blood cells to form the so called respiratory papillae. Scanning electron microscopy revealed that the stem divisions and their bulbous terminii contained double parallel rows of paired projections (respiratory lamellae) separated by areas of smooth surface studded with microvilli.

In conclusion, catfish can survive out of water for several hours by breathing air directly with their accessory respiratory organ (dendritic organ) which has extensive internal subdivision and hence a large respiratory surface to extract oxygen from air.

Functional Anatomy and Biomechanics of the Equine Back and Hind Limbs in Trot

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Abstract

The objective of this study was to document biomechanics of back and hind limbs of sound and lame horses using surface electromyography and kinematics.

Ten sound and 10 lame horses were studied. Muscle activity of Mm. Longissimus dorsi, Gluteus medius, Biceps femoris, Semitendinosus and Extensor dig. longus was recorded with surface electrodes (TelemyoMini 16, Noraxon Inc. AZ, USA). Kinematic data was collected using reflective markers on the back and limbs of the horses (EVaRT 5.0, MotionAnalysis Inc. CA, USA) and was used to calculate maximum and minimum spinal and hock angles. Horses were grouped as Sound (Sd), Lame (L), Sound side of lame horses (SL), and Lame side of lame horses (LL). Statistical analysis was done with SPSS 14.0 ($P<0.05$)

Semitendinosus and Ext. dig. longus of the lame side of a lame horse were more relaxed between their contraction phases when compared to the sound horses. Longissimus dorsi of the lame horses showed pre-emptive tension during the resting phase when compared to the sound horses. There was no significant difference of spinal and hock angles (range of motion) among the 4 groups.

Conclusion:
Absence of kinematically detectable differences of range of motion may not mean a sound horse; an underlying variation of muscle use may still be present.

New aspects in teaching and learning the applied veterinary anatomy.

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Abstract

The fast waves of inventions and modifications of the high tech equipments in the last century converted the plane images into 2-dimensions and three-dimension ones. The appearances of the different multimedia facilities, as well as the prevalence of new pet animal species in the markets such as ostriches, Guinea pigs, hamsters, turtles, ..etc necessitate another and new conception in the morphology and anatomy teaching fields.

To reach the gross anatomy tutorial of the international level we have to follow the same steps and use the same tools and means used all over the world.

This proposal in the field of Veterinary Anatomy and Embryology may be a step on the way of developing the other fields of specialization in the Veterinary Medicine Profession . The developing of veterinary tutorial also matches the new global demand of accreditation and quality control programs adopted now in all our Universities and in other countries all over the world.

Imaging Facilities & multimedia includes :

1) X-ray (1D image)
2) X-ray Stereo Fluoroscopy
3) Digital radiography
4) Ultra-sonography

5) Computed Tomography (CT)
6) Magnetic Resonance Imaging (MRI)
7) Scintigraphy
8) Endoscopy
9) Thermography
10)Other Techniques (Plastination, Animation, Skeleton display)

Histochemical Analysis of Glycoconjugates in the Muzzle Skin of Egyptian Water Buffalos *(Bubalus bubalis)* With Special Reference to the Glandular Structure

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Abstract

In the present study, the distribution of various sugar residues in skin and nasolabial gland of the muzzle region I the Egyptian water buffalos was investigated by light microscopic histochemical methods, particularly lectin histochemistry. The epidermis and the nasolabial glands were labeled with all lectins under investigation (LCA, ConA, PNA, RCA_{120}, WGA, DBA, UEA-I, MAA, SSA and PHA-E) except the MAA and UEA-I which were negative in the epidermis and in the secretory acini respectively. Lectins labeling of the epidermis revealed the presence of mannosyl (LCA, ConA), galactosyl (PNA, RCA_{120}), N-acetyl-glucosamine (WGA), N-acetyl-galactosamine (DBA, PHA-E), L-fucose (UEA-I) and neuraminic acid (SSA). Interestingly, most layers of the epidermis exhibited different degrees of lectin labeling except the stratum cornium which showed negative reaction to all lectins. Similarly, the nasolabial glands revealed the presence of mannosyl (LCA, ConA), galactosyl (PNA, RCA_{120}), N-acetyl-glucosamine (WGA), N-acetyl-galactosamine (DBA, PHA-E) and neuraminic acid (MAA, SSA) while did not show any binding sites for L- fucose (UEA-I). The excretory ducts labeling were moderate to weak for all used lectins with two main features; firstly the presence of basal striation resemble the striated duct of salivary glands, secondly the lectin labeling was mainly confined to the luminal surface of their cells.

In conclusions, the complex carbohydrates with various sugar residues found in the epidermis and nasolabial glands of the muzzle region of buffalo may be involved in important functions, such as the preservation of humidity on the skin surface and the protection of the epidermis against physical damage or bacterial invasion. In addition, our results support the view of a salivary nature of the nasolabial gland in buffalo and emphasis that the functional significance of this gland type is not fundamentally different from that in other bovidae.

Histological, Ultrastructural and Histochemical Study on the Male Rabbits Postnatal Development of the Large Intestine

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Abstract

The paper presents the histological, ultrastructural and histochemical studies on the caecum and colon that have been conducted on 50 Blanc de Bouscat male rabbits of different ages, the ages varied between 0- 30 days. The investigation showed that the mucosa of the caecum and colon was composed of crypts with villar shape at 0-day of age and the length of the crypts decreased with advancing age. The crypts were lined by striated epithelial cells. Goblet cells were prominent. The absorptive columnar cells had apical microvilli and contained vacuoles of different size, ovoid to elongated nucleus, mitochondria, rough endoplasmic reticulum and lateral membranous interdigitations. Cells with polymorphic secretory granules were noticed. Varying degrees of positive reaction to PAS diastase resistant material and diastase- digested material was seen in the colon surface epithelium and glands.

Arthrosonography and Computed Tomography of Normal Caprine Hock Joint

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Abstract

Comprehensive computed tomographic and ultrasonographic imaging of caprine hock joint was carried out on twenty healthy goats free from any deformities and covering different age and sex, from which five were alive.

The anatomical features of the CT and Sonography were compared with gross anatomical sections to assist in the accurate identification of the articular and peri-articular structures of the joint

The results obtained revealed that the anatomical study of caprine hock joint by these methods is a useful noninvasive means of studying the different structures of the nominated joint. It appeared that the images of CT for bony assessment and peri-articular structures were more better than sonography, however the latter method provided a greatest contrast and best anatomical details for the joint capsule and the collateral ligaments of the hock joint. Moreover, it is an essential approach which has a direct clinical relevance in veterinary orthropedic.

Plastination of Domestic Cat

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Abstract

Zagazig Plastination Laboratory was established at Faculty of Veterinary Medicine, Zagazig University, Egypt to enhance the education of Anatomy for both Veterinary and Human medical students.

The Plastination Laboratory was supported by a Project from Higher Education Enhancement Program Fund. (HEEPF, 2nd cycle 2004, Code B-053-To).

At this stage the Laboratory is designed for preparation of Plastinated specimens by Silicon 10 technique and P40.

Three fixed Cats were dissected and Plastinated by S10 technique (dehydration by cold acetone, forced impregnation and gas curing). The Plastinated Cats were displayed in Plastination exhibition.

The Plastinated Cats were evaluated by students and staff members for better understanding of Anatomy. The evaluation of Plastinated Cats showed increase in the Intended learning outcomes (ILOs) and Academic standards.

Website for the plastination laboratory was established and can be used by students and staff members (zu.edu.eg./plastination). In addition a web-based photo gallery was established.

Accreditation is the aim to ensure that our faculty and graduates are recognized, compete world wide and to meet society demand for Veterinary services.

Macro and Microscopic Studies on the Cloaca of the Ostrich *(Struthio camelus)*

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Abstract

The present study was carried-out on 32 male cloacal specimens (17 eviscerated and 15 non-eviscerated) of immature and mature male ostriches (Struthio camelus). The present study revealed that, the cavity of the cloaca is delimited cranially from the colonic pouch of the terminal colon by a well constructed colocoprodeal fold, which has strong annular sphincter and it is divided by the coprourodeal and uroproctodeal folds into coprodeum, urodeum and proctodeum.The coprodeum has a ventrally expanded wide coprodeal sac and it is lined by a simple columnar epithelium permiated with numerous PAS-Ab positively reacted goblet mucous secreting cells.

The urodeum is lined with non-keratinized stratified squamous epithelium containing PAS-Ab positive mucous secreting cells, and its cavity recieved the terminal ends of the ureters and ductus deferenses or left oviduct.

The proctodeal cavity is lined with non-keratinized stratified squamous epithelium, rich with branched mucosal tubular glands of PAS-Ab positive reaction in its cranial portion. It is greatly expanded cranially in a dorsal pocket-like sac dorsal to the urodeum. Meanwhile, the ventral portion of the proctodeal cavity is colonized by the flaccid phallus or clitoris. The mucosa of the dorsolateral wall of the proctodeum is greatly folded into longitudinally folds, which contributed in formation of the bursa of Fabricius carrying the bursal follicles. The uroproctodeal segment revealed bilaterally located paracloacal vascular bodies of an encapsulated cavernous tissue. **(Poster)**

Morphogenesis of the Blood Vessels of the External Ear of Buffaloes *(Bubalus Bubalis)*

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Abstract

This study was carried out on Fifty-four embryos and fetuses of the Egyptian water buffaloes of both sex and ranging from 45-930 mm CVRL in corresponding to (49-283 days-old). These embryos and fetuses were collected from El-Mansoura slaughter house shortly after evisceration and they were chosen to represent the whole fetal life.

The morphogenesis of the vascular architecture within the fetal concha auriculae followed into four sequential stages:

The first stage (fetuses from 49-74 days-old):- The ear concha revealed the primitive vascular architecture characterized by primitive haemanioblast cells randomly distributed within the dermis in form of blood islands.

The second stage (fetuses from 81-112 days-old):- The primitive arborization pattern of the conchal blood vessels is recognized in form of five arterial Rami and three main veins with their fine arterial twigs and venular tributaries. Several arcuate and perforating first-order arterial branches and venous tributaries were observed.

The third stage (fetuses from 126-187 days-old):- The organization pattern of the conchal blood vessels showed a premature pattern of orientation and distribution on both medial and lateral surface. These blood vessels were represented by five main arterial Rami and three main veins anastomosed severally on both conchal surface especially at the margins and the apex of the concha. Moreover, the perichondral and subepidermal retae and plexuses are clearly observed on both conchal surfaces with several perforating branches throughout the foramina of the conchal cartilage. Later in this stage, extensive arterial and venous shunts oriented along the convex surface of the concha.

The fourth stage (fetuses from 198-283 days-old):- The final constructive patterns of arterial and venous arborization were exhibited, whereas, the definite complex form of subepidermal, perichondral retae and plexuses. Venous shunt and extensive arterial anastomoses along the margins of the concha, in addition to a complex.**(Poster)**

Prenatal Development of the Peri-Epidermal Membrane in the One-Humped Camel *(Camelus dromedarius)*

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Abstract

What is called peri-epidermal membrane (suggested by the authors) in camel fetuses was represented by a very thin transparent membrane. It is opaque whitish, slippery to touch, elastic and rubbery in texture in the full-term fetus. It coveres the entire body surface except at the natural orifices. It is also attached to the foetal body at the muco-cutaneous junctions. The foetal skin epidermis at early stage appeared to be composed of two layers (a basal and an outer cell layers); the latter of which was covered with periderm. With the advanced foetal age there was an intermediate cell layer that developed between the previous layers. At about 42 cm CVRL fetuses, the separation started between the intermediate and basal layers as a result of

programmed cell death and thus both the outer and intermediate layers were evidently would form the future peri-epidermal membrane, while the basal layer would form the skin epidermis. At 105 cm CVRL fetuses, the peri-epidermal membrane was completely separated and showed microscopic foramina of various sizes indicating that the membrane could be easily torn off from the surface of the skin after birth. Moreover, the slippery peri-epidermal membrane might play a role for easy delivery of the fetus especially in the recumbent mother animals.**(Poster)**

Morphological Structure and Closure of the Ductus Arteriosus in One-humped Camel *(Camelus dromedarius)*

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Abstract

A total number of 144 camel fetuses with their CVRL ranging from 2.5- 116 cm. collected from Cairo slaughter house were used in this study. For gross morphogenesis of the Ductus arteriosus, 102 fetuses were used and the remaining 42 fetuses were employed for its microscopic structure.

The work also included studying of the Ductus arteriosus and /or Ligamentum arteriosum in 6 camel calves of 1-70 days old obtained from the Faculty farm in Ismailia.

The gross , microscopic structures and morphogenesis of the Ductus arteriosus were thoroughly investigated and its various parameters { inner circumference at the aortic end (P1), at the middle of the duct (P2), at the pulmonary end (P3) in addition to its length (P4)} were measured and statistically tabulated.

The results showed that the closure of the Ductus arteriosus had begun to occur prenatally by formation of multiple intimal cushions with increase in the musculo-fibrous density of the tunica media. After birth, the changes in the ductal structure included intimal necrosis and dystrophy, necrosis and hyalinization of the smooth muscles of the media with increase in the fibrous connective tissue in both intimal cushions and media.

The complete anatomical closure of the Ductus arteriosus could be seen at its aortic end after birth in camel calves of 70 days old.**(Poster)**

Some Structural Adaptation to the mode of Mastication in Goats, Foxes and Pigs

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Abstract

A total number of thirty heads of apparently healthy adult Balady goats, red foxes and pigs (1.5 – 2 years old) of both sexes were used in the current study. Animals were selected as representatives of herbivores, carnivores and omnivores that differed in their eating habits and mechanisms of mastication.

The gross morphological differences between the studied muscles of mastication (Mm. masseter, temporalis, pterygoideus medialis and pterygoideus lateralis) were recorded in these species of animals, regarding the form, direction of the muscle fibers and the attachment areas of their origin and insertion. Also, the relative weights of such muscles in each animal were recorded and statistically tabulated. In addition, the form of the articular surfaces of the temporo–mandibular joint in the investigated animals was studied.

The obtained results reported that the masseter muscle was the heaviest masticatory muscle in goat and pig, thus allowing the lateral shift of the mandible during chewing. At the same time, the muscle was broad at its origin and insertion in pig; that might provide a chewing force over a broad area. Meanwhile, the M. temporalis in fox was the largest and consequently the most efficient muscle of mastication. Also, its form and attachment might allow closure of the jaws until the teeth come into contact. The study also, revealed that the temporo–mandibular joint in fox lay nearly in a line with the level of the occlusal surface of the cheek teeth to facilitate the characteristic scissor–like motion of the jaws during mastication. While that joint was situated at a much higher level in goat and pig, to enhance their chewing mechanism.

The current results were discussed with those given by previous authors in other species of animals.
(Poster)

Observations on Bony Principles of the Leg and Foot of Ostrich *(Struthio camelus)*

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Abstract

Ostrich considered herbivorous, are desert, largest birds unable to fly. Structural observation of leg and foot shows strong long bones to resist disorders that cause ostrich mortalities. Among these highlighted disorders are perosis (slipped tendon), curled leg disease as well as spread of legs of small ostriches.

This work is carried on 12 legs and foot obtained from 6 ostriches of different ages varies from 1-2 years, the bones were macerated and prepared routinely.

Anatomically, the leg represents the tibiotarsus and fibula while the foot is characterized by the presence of tarsometatarsus with three digits.

The tibiotarsus (37-56 cm) is formed by the fusion between the tibia and the proximal row of tarsal bones.

The fibula(29-45 cm) is shorter if it is compared with the tibiotarsus.

With regards to the bones forming the foot, tarsometatarsus is formed by the fusion of distal row of the tarsal bones and 2nd, 3rd, and 4th metatarsal bones. The hypotarsus is located on its caudal surface. Medial to the hypotarsus, a single hypotarsal groove for the passage of the extensor tendons is observed. The distal extremity of the tarsometatarsus carries three trochleae which articulate with three digits (II, III, and IV). Digits (I& V) are absent. Digit II (innermost toe) is rudimentary, covered with skin and composed of three phalanges. Digit III (main toe) has four phalanges. Digit IV (smaller outer toe) consists of five phalanges. Both distal phalanx of digit III and IV are covered with claws.

In conclusion, any deformities or abnormalities in hypotarsal groove or /and condyles of the tarsometatarsus may lead to slipped tendon.**(Poster)**

Prenatal Development of the Tongue and its Papillae in the One-humped Camel *(Camelus dromedarius)*

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Abstract

Tongues from 18 camel fetuses of different CVR lengths were divided into three groups (5-20 cm), (45-55 cm) and (100-120 cm) CVR lengths. Each group contained 6 tongues which were used for gross morphology and scanning electron microscopy (SEM). For the latter small pieces from different areas were collected and fixed in 3% glutraldehyde. Grossly, the most rostral part of the apex was slightly narrow in comparison to the body and there was a small constriction marking the apex from the body of the tongue in the first group. In the second group the tongue had the same width except the root which was narrow than the rest of the tongue. The constriction was not clearly seen and the apex became wide. In the third group the tongue was longer and thicker than before, with clearly differentiated torous linguae, median longitudinal groove and clearly visible lingual papillae.

SEM revealed that in the first group the apex of the tongue was free from filiform papillae but few fungiform papillae were seen developing near the lateral borders. A median linear cellular proliferation was demonstrated on the apex and few papillary projections could be seen on the rostral part of the body, but caudally vallate papillae laterally and lenticular papillae medially begin their first indication. In the second group, the lateral parts of the apex and the rostral part of the body showed numerous short filiform papillae. Few fungiform papillae were sporadically scattered near the lateral borders of the apex and the body. Filiform papillae were distinct and numerous on the rostral part of the body than on the apex. On the dorsal surace of the torous linguae both lenticular and vallate papillae were easily demonstrated. Vallate papillae started to arrange themselves laterally in the form of 2 rows on each side. The papillary grooves were formed by cellular breakdown around the papillary bodies. The lenticular papillae appeared covering the whole torous linguae except an area occupied by the vallate papillae. In the third group, filiform papillae were numerous on the rostral part of the body and apex. Lenticular papillae became larger in size with caudally directed pointed ends. They were arranged in 3-4 rows lateral to the vallate papillae and several rows in the paramedian zone. Fungiform papillae were similar to those of the second group but the papillary grooves were completely formed. Vallate papillae were about 5 to 6 on each side of the torous linguae. They were circular to oval in shape and surrounded by completely formed papillary grooves. Taste pores were easily demonstrated on the surface of the papillary body. **(Poster)**

Some Comparative Anatomical Studies on the Liver in Ducks, Chicken and Pigeon

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Abstract

The present study was carried out on sixty four birds of each of the duck, chicken and pigeon, of native breed of different sexes and ages of one day, one month, three months and six months old. The liver of the duck, chicken and pigeon lies in the ventral part of the cranial half of the body cavity. The caudal end of the liver in one day old duck, chicken and pigeon extends behind the end of the sternum by about 1.4 cm, 0.3 cm & 0.5 cm respectively .The liver is composed of right lobe and left lobe .The two lobes are attached cranially and dorsally by interlobar part The liver represents about 4.4 % of total body weight in duck, 2.68 % in chicken and 3.2 % in pigeon. The weight of the liver increased by about 25 time from one day to six month old age in the duck, 18 time in the chicken and 4 time in the pigeon.

The gall bladder is present in the duck and chicken but absent in pigeon. In the studied birds the bile canaliculi drain into inter lobular ducts. These canaliculi unit forming the lobar bile ducts which united forming the right and left hepatic duct. The two hepatic ducts unit at the portahepatis of the liver forming the common bile duct which opens in the distal part of the ascending duodenum . On the right lobe of the liver in the duck and chicken, the ductus hepatocysticus extends from the right lobe to the gall bladder and the ductus cystoentericus passes from the gall bladder to the distal part of the ascending loop of the duodenum.
(Poster)

Morphology and Radiographic Anatomy of the Skull of Ostrich *(Struthio camelus)*

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Abstract

This work describes the gross anatomical features of the skull in eight adult ostriches aging 12-18 months . In addition, studying the relation between the bony structures of the cranial cavity, orbit, nasal sinuses and lower jaw by using X-rays radioscopy.

Right lateral radiographs produced by a 6-frame technique and 2 dorsoventral radiographs produced by an adapted 3-frame technique were adopted and selected. Schematic illustrations were labeled to illustrate the normal radio-graphic anatomy.

The study revealed that the bony mass of the ostrich skull is interposed between the exoccipital, supraoccipital, and parietal bones. The craniofacial axis consists of three bones: a cranial (petrosal), a caudal (mastoid) and a third bone anchylosed with them (epiotic).

The normal radiographs explained the unique features of the ostrich skull and visualized and described the differences between it and the other avian species**.(Poster)**

Histological and Histochemical Study on the Pregnant Cervix of She-camel with Special References to Progesterone Receptors and Relaxin Localization.

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Abstract

The current work was carried out to study the histological and histochemical changes of the pregnant cervix during the third stage of pregnancy. Seven mature apparently healthy female dromedaries were used. The cervical tissues were collected at Cairo abattoir. The stage of pregnancy was roughly estimated by measuring the crown vertebral-rump length (CVRL) of the fetuses. Animals were scarified and cervix was dissected out for light microscopy; tissues were fixed in Bouin's solution and 10 % neutral buffered

formalin. Paraffin sections were stained with H&E, AB/PAS, Gomori stain and Masson's Trichrome. Also, Paraffin sections were immunostained for progesterone receptors (PR); using mouse monoclonal antibody against human progesterone receptors and relaxin using rabbit antiporcine relaxin antiserum. For transmission electron microscopy; mucosal pieces were stained with uranyl acetate and lead citrate. The cervical mucosa was thrown into primary, secondary and tertiary folds that capped with dense mucous. Epitheliocytes were packed with mucinogen granules, numerous strands of rough endoplasmic reticulum. Stroma could be divided into two parts: subepithelial and deep part. Ultrastructure of the stroma showed loosely organized collagen fibers of undefined direction; they were dispersed, leaving wide spaces among them containing amorphous ground substances. The highest intensity of progesterone receptors (PR) immunoreactivity was observed in the nuclei of smooth myocytes of deep stroma and muscular wall whereas it was faint in the cervical epithelium. Prominent immunolocalization of relaxin was obvious in the cytoplasm of smooth myocytes.**(Poster)**

Gross Anatomical Studies on the Portal Vein, Hepatic Artery and Bile Duct in the Liver of the Pig

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Abstract

Nowadays, pig has been chosen as the potential source of organs and cells for human to overcome a sever shortage of human material for clinical transplantation especially in the last 10 years by use of genetically modified swine. Consequently, the present study was conducted to give detailed information about the distribution of the blood vessels and bile ducts and their topographic relations which may give a useful base for the hepatic segmentation in this animal aiming to provide a correct base for surgical procedures and liver transplantation.

The present study was conducted on 33 livers of pigs. Dissection, casting and radio-opaque techniques have been applied to show the different ramifications of the portal vein, hepatic artery and bile duct systems as well as their topographic relations with proposals of hepatic segmentation.

The results revealed that, the caudate, right lateral and right medial lobes were supplied by R. dorsalis dexter and R. ventralis dexter of the portal vein in addition to R. dexter of the hepatic artery and right hepatic duct. The quadrate,left medial and left lateral lobes were supplied by the R. sinister of the portal vein and hepatic artery and left hepatic duct.

The liver of the pig could be divided into two independent segments; right and left. These two segments were separated by a segmental plane passed from the esophageal notch dorsally to the fossa of the gall bladder ventrally.**(Poster)**

Distribution of the Ghrelin Hormone Producing Cells in the Gastrointestinal Tract of Some Birds (Immunohisto-chemical Study)

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Abstract

Ghrelin hormone is a novel 28 - aminoacid has recently discovered in birds in 1999. Ghrelin is a hormone produced by endocrine cells in the gastrointestinal tract. It stimulates growth hormone secretion, promotes food intake and energy expenditure. The distribution and morphologic characteristics of ghrelin – containing cells in the gastrointestinal tract of goose, ducks, chicken, quails and ostrich was investigated by immunocytochemistry. Ghrelin – immunopositive cells were located in the mucosa of the proventriculus,

duodenum, jejunum, ileum and cecum of goose and duck, while in chicken, the ghrelin positive cells were mainly localized in the proventriculus and few cells were scattered in the small and large intestine. In quail and ostrich, the cells only found in the proventriculus. The numbers of the positive cells were numerous in goose and duck, than that in the chicken, quails and ostrich.

Key words: Ghrelin, Birds (goose, ducks, chicken, quail and ostrich), Gastrointestinal tract, Immunohistochemistry.**(Poster)**

The Postnatal Development and the Aging Changes of the Cerebellar Cortex in Cat

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Abstract

A total of 42 male cats were used in this study on different postnatal periods ranging from one day old cats to 4-5 years old cats.

Light microscopic study: The cerebellar cortex of the neonatal kitten was found to be incompletely differentiated. It was distinguished by a thick subpial external granular layer of actively dividing cells. This layer began to decrease at the age of 10 days old until it disappeared at the age of 2 months old. Also the molecular layer was thin and in the preceding ages it increased progressively in thickness and became cellular. At the age of the newborn, the Purkinje cells were arranged in one or two layers with polymorphic basal nuclei with apical cone of cytoplasm. Some less differentiated spindle-shaped cells were seen more deep in the internal granular layer. The Purkinje cells increased in size until they attained an adult appearance (flask-shaped with well developed Nissl granules) at the age of 2 month old. Major growth and differentiation occurred in the internal granular layer from the age of newborn, where it is less demarcated till the age of one month postnatal where it attained an adult appearance. In aged cat, the cerebellar cortex showed clearly structural changes in the form of decreased thickness of the molecular layer with loss of some Purkinje cells. Also there were various changes of Purkinje cells in the form of small size, pale stained cytoplasm with coarse dense granules and distorted nuclei (irregular, bilobed or even absent).

At the age of newborn, Golgi Cox showed Purkinje cell with one or two main apical dendrites bearing spines and numerous processes radiating from its body. At the age of one month postnatal, disappearance of the perisomatic processes with massive expansion in the height of the dendritic tree which was loaded with spines and spiny branchlets but not reaching to the pial surface. In adult cat, the Purkinje cells became mature with richly branched and heavily spined dendrites which were attaining the pial surface of the folium. In aged cat, the dendrites of the Purkinje cells have clearly shrunken with decreased arborization.

Electron microscopic study: In the aged cats, the Purkinje cells showed accumulation of pigment-predominate small lipofuscin granules in relation to those of adult cats, vacuolated cytoplasm and irregular contour of their nuclei. Some cells showed shrinkage of their nuclei with disruption of the nuclear membrane.

Morphometric analysis showed decreased thickness of the molecular layer and total cerebellar cortex, increased thickness of the internal granular layer, and decreased number of Purkinje cells/mm. **(Poster)**

Speech of the Opening ceremony given by Prof. Dr. A.S. Saber President of the Afr AVA and Prof. Dr. R. Leiser President of the EAVA

Attendants of the first congress of the Afr AVA (Congress halls of Ain-Shams University)

The Logo of the Afr AVA presented to the president of the EAVA, Prof. R. Leiser from Prof. A.S.Saber, the president of Afr AVA

Presidents of the EAVA and Afr AVA with colleagues from Jordan (Dr. Al-Zagoul, left) and Egypt (Dr. Adel-Naeim, right)