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Chapter 1 : Cystoid Macular Edema Market - Global Trends, Growth, & Forecast to

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The diploporite blastozoan Lepidocalix pulcher from the Middle Ordovician of northern Algeria: Taxonomic revision and palaeoecological implications. Acta Palaeontologica Polonica 62 2: An emended diagnosis is proposed, highlighting the four-fold ambulacral system and the typical thecal plating organised in circlets. Lepidocalix is here assigned to the subfamily Calicinae of the family Aristocystitidae. The latex casts show fitted sutures between plates, slightly abraded spines, and well-preserved oral surface. The thecal plates possess up to three dipores, each, included into the spines. The presence of such covered diplopores would have reduced the respiration rate, by restricting their exchange surface area. The spines covering the dipores are not articulated and they could have a protective role. Lepidocalix is interpreted as stationary epifauna, probably using iceberg strategy to be stabilized into the soft substrate. Echinodermata, Diploporita, taxonomy, palaeoecology, Ordovician, Algeria, Stita. Yamouna Makhlouf [yamouna. Bertrand Lefebvre [bertrand. Elise Nardin [elise. Ahmed Nedjari [nedjaria gmail. Paul [glcrcp bristol. Received 21 June , accepted 6 March , available online 26 April This is an open-access article distributed under the terms of the Creative Commons Attribution License for details please see http: In mid to high latitude peri-Gondwanan regions of the southern hemisphere, aristocystitid diploporites were one of the dominant groups of Middle to Late Ordovician invertebrates, e. Ordovician echinoderm faunas have been superficially investigated in Algeria. Termier and Termier a reported the presence of diploporite blastozoans in the Middle Ordovician of northern Algeria Great Kabylia. The aim of this study is to describe and revise taxonomically the poorly known aristocystitid species Lepidocalix pulcher Termier and Termier, a, from the Middle Ordovician of northern Algeria. Its particular morphology could contribute to improve the discussion about the palaeoecology of the diploporites. Historical background The presence of Palaeozoic strata in Great Kabylia was first acknowledged by Lambert , based on the discovery of Orthoceras and Tentaculites in limestone beds previously assigned to the Infralias by Ficheur On the northern edge of the Kabylian mountains, the occurrence of Ordovician echinoderms was first reported by Barbier et al. The main locality is situated near the confluence of Wadi Stita and Wadi Sebaou, on the southern side of a hillock called the Zaouia. This outcrop yielded Protocrinites cf. The second fossiliferous site is located about m southeast of the right bank of Wadi Sebaou. The fauna is similar to that of the first locality, but with a higher abundance of Sphaeronites sp. The last outcrop Akaoudj village yielded small individuals of Sphaeronites. All Darriwilian echinoderm assemblages from Kabylia consist only of diploporites. The presence of a younger Katian echinoderm fauna was also reported by Lambert et al. This Late Ordovician echinoderm assemblage is composed exclusively of rhombiferans: Heliocrinites rouvillei von Koenen, , Corylocrinus cf. It shows an oral zone with four brachiole facets covered by ambulacral plates Termier and Termier The second one was interpreted as an asteroblastid. It is characterized by a pentameric peristome connected to ladder-shaped ambulacra Termier and Termier The whole Ordovician echinoderm fauna from Kabylia was reinvestigated and described in more detail by Termier and Termier a. Lepidocalix pulchrum aristocystitid diploporite and Barbieria stitensis sphaeronitid diploporite. The associated echinoderm fauna from the same outcrop was also reported. It includes Sphaeronites sp. Recently, Botquelen et al. All specimens are preserved as delicate imprints in Upper Ordovician sandstone Makhlouf et al. The same formation had previously delivered Ghienne et al. Geological setting In Tellian areas, the extent of Palaeozoic outcrops is restricted to a few occurrences in a limited number of regions: It probably results from the convergence and collision of an element of the southern European margin with the northern African margin of the Maghreb Tethys basin Wildi The two historical Darriwilian outcrops yielding echinoderm remains are located in Great Kabylia: In addition to the aristocystitid Lepidocalix pulcher Termier and Termier, a, this locality yielded a diverse associated fauna comprising brachiopods Strophomena barbieri Termier and Termier, a; Leptaena cf. General map of Algeria A and northern Algeria B showing location of the fossiliferous sites solid circles.

Material and methods All specimens of Lepidocalix studied here were originally briefly described and illustrated as rough line drawings by Termier and Termier a. Where part and counterpart moulds are available, both external and internal surface of the same part of the theca can be studied MUA. The rest of the material only reveals external surface, probably crushed before complete burial. The tectonic distortion of the study material prevented any attempt at providing a detailed reconstruction of all aspects of its original morphology. The six examined specimens are deposited in the collections of the Museum of Algiers University. Their preservation as internal or external empty moulds made it necessary to prepare latex casts, whitened with ammonium chloride. In this model, the theca can be subdivided into five circlets of plates: In glyptocystitoids, the seven oral plates are consistently located in interradial position: Thecal plate homologies in diploporite cystoids were first investigated by Paul , who proposed two distinct terminologies for skeletal elements framing the peristome: Paul did not use the same plate designation as in glyptocystitoids, so as to avoid any implication in terms of homologies: Recently, the terminology originally defined for the plates framing the peristome in glyptocystitoids was applied to blastoids, coronates, diploporites, eocrinoids, and paracrinoids Sumrall , , ; Sumrall and Waters ; Kammer et al. The generalization of this model, coined UEH by Sumrall , represents a major advance for blastozoan phylogeny. However, the very distinctive plate patterns displayed by some diploporites question the universality of this model Paul In holocystitids and protocrinitids, the plate pattern of the oral area is compatible with the UEH Sumrall , , ; Sheffield and Sumrall The other elements forming the mouth frame in sphaeronitids are in radial position CO1â€”5 and possibly correspond to enlarged facetals by comparison with other diploporites Paul , ; Paul and Bockelie ; but see Sumrall for a different interpretation. The identification of the skeletal elements forming the mouth frame in aristocystitid diploporites has been so far largely neglected in all systematic descriptions e. This situation probably results from the limited number of specimens showing well-preserved oral areas. The peristome of aristocystitids is delimited by a variable number of plates: These radial mouth frame elements are very likely equivalent to COO in sphaeronitids and have no equivalent in other blastozoans. Consequently, the UEH terminology is not followed herein. This model does not provide any clues for the identification of radial mouth frame elements in both aristocystitids and sphaeronitids. In Lepidocalix, only four plates involved in the peristomial margin could be putatively compared with topologically equivalent elements in other blastozoans O3 and O4 in the BE interray, O1 and O6 in the CD interray. On the other hand, the plate designation proposed by Paul for mouth frame elements in diploporite cystoids makes it possible to identify all plates in Lepidocalix, and to compare its plate pattern with those of both holocystitids and sphaeronitids. Discussion about putative homologies of interradial mouth frame elements in diploporites and other blastozoans is beyond the scope of this paper, as it would require the detailed reexamination of the oral surfaces of all most aristocystitid genera. Plate surface flattened to convex and bearing central umbo to well-developed spine. Roundish to elliptical peripores including one large diplopore, sometimes covered by a tubercle. Elongate peristome central to a four-fold ambulacral system. Kesling did not acknowledge the different subfamilies Aristocystitinae, Calicinae, and Hippocystinae identified by Chauvel within the family Aristocystitidae. The subfamily Calicinae differs from the two other ones by the shape of the diplopores, the presence of a strong ornamentation, the small size of thecal plates, and the ambulacral pattern. Genus Lepidocalix Termier and Termier, a Type species: The diagnosis proposed here has been emended from the only previously published one by Kesling ; Fig. Scale bar 10 mm. Lepidocalix pulcher Termier and Termier, a Figs. Lepidocalix pulchrus [sic] Termier and Termier, a; Kesling Primary plates bear up to three dipores, while secondary and tertiary plates, one tubercular diplopore. Relatively small and elongate peristome connected to two main ambulacral rays subdivided once laterally. Ambulacral rays and peristome covered by two series of polygonal cover plates. Periproct restricted to an anal pyramid composed of triangular plates. Slit-like hydropore located between the peristome and the periproct in the CD interray. Photograph of latex cast of external mould showing spines, tubercles, and the appearance of imbricate plates. Camera lucida drawing, note three generations of plates. Scale bars 2 mm. The largest preserved theca reaches 62 mm in diameter MUA. Primary plates are pentagonal in shape, sometimes hexagonal with rounded corners. Each primary plate carries one central spine and sometimes one or two tubercles. Secondary and tertiary plates are smaller, hexagonal to

irregularly polygonal. They sometimes bear one small tubercle Fig. In larger specimens, primary plates are up to 3 mm wide and 4. All plates are thin at their edges, less than 0. Plates appear to be aligned to form continuous circlets reflecting three generations of circlets.

Chapter 2 : Cystic lung disease | Radiology Reference Article | calendrierdelascience.com

contributions from the museum of paleontology the university of michigan vol. xviii, no. 6, pp. july 10, key for classification of cystoids by robert v. kesling.

Phylogenetic Considerations of Echinoderms: They differ from one another by specialised features. Despite apparent diversities, they possess striking similarities in development and in their basic structural organisation. They have many common features: The eggs are small and yolked. The cleavages are holoblastic and radial. The blastopore has posterior location. The coelom is developed as the outpockets from the archenteron enterocoelic in origin. The larvae are free-swimming and have bilaterally symmetrical bodies. In all adult Echinoderms, adjacent to the epidermis there exists calcareous ossicles constituting the skeleton of the body. The disposition of the plates varies in different forms. It is also regarded that the ancestral forms with bilateral symmetry, are the forerunners of the group. With all probabilities, some unknown Precambrian forms with bilateral symmetry are to be regarded as the ancestor of Echinoderms. Two exactly opposite views exist on this particular issue. According to the first concept the hypothetical ancestor is the Dipleurula larva but other school holds that the Pentactula larva is the ancestor. This larval form has following features: Bilaterally symmetrical body with pre- oral lobe. Absence of skeletal formations. Ventrally placed mouth and anus. Presence of three paired sacs axocoel, hydrocoel and somatocoel with two water-pores. It has been imagined by many workers that this larva holds the key of Echinoderm ancestry. But it was not possible to explain the derivation of some vital Echinoderm features, viz. According to Bather, water vascular system originates as three ciliated grooves which become five by the subsequent subdivision of the two lateral grooves. The available interpretations on the origin of the water vascular system are not supported by embryological data. This idea was first conceived by Semon and later developed by Burry , Hyman and many others. Early workers also suggested that the sea-stars and sea-cucumbers had many common features specially at the larval stages. Both of them were held to be related to crinoids more closely and they had possibly diverged very early from the Pelmatozoan ancestor. Such similarities led early workers to establish a relationship between ophiuroids and echinoids and both were regarded to have diverged subsequently from the Pelmatozoan ancestor. Eminent palaeontologists like, Bather, Marcus, Mortesen held that all the classes of the subphylum Eleutherozoa arose from Edrioasteroidea, an extinct group of Pelmatozoans, because of similar disposition of ambulacral pores, flexible theca, stalkless body and many other features. Shrock and Twenhofel suggested that only the holothurians and echinoids have evolved from Edrioasteroidea. Fell showed that the echinoderms show convergent patterns of development among unrelated groups Asterozoa, Echinozoa and Crinozoa and divergent patterns of development among related groups Ophiuroidea. The eocrinoids and crinoids again had a common ancestry. On the other hand Holothuroidea and Echinoidea had a common ancestry. Thus modern researches suggest that the larval affinities cannot act as a guide in establishing the phylogenetic relationships between different classes of surviving echinoderms. Again early asteroids can show some striking resemblances to crinoids rather than holothuroids on the basis of arm structure. According to Nichols , crinoidea includes the oldest known members and therefore may be considered as the most primitive echinoderms. Asteroids and ophiuroids to be closely related groups on the basis of skeletal structure. Ophiuroids and echinoids may be related on the basis of lacking of open ambulacral groove. Research on Indian Echinoderms: Bell reported 17 holothurian species from the Andaman and Nicobar Islands. Koehler and Vaney reported 51 holothurian species from Andaman and Nicobar Islands. Gravely listed 21 echinoderm species from the Madras Chennai beach. Kurian reported 4 species from Travancore coast. Sanne and Chhapgar listed 15 species from intertidal region of Bombay Mumbai. Gopalkrishnan reported species of holothurians from the Gulf of Kutch. In the midsixties some work on the reproductive physiology was initiated by Prof. Krishnaswamy, Krishnaswamy and Krishnan , K. Rao , 68 and Rahman , Jones initiated work on the associations in general and echinoderms in particular. Jones listed over species known from the Gulf of Mannar and Palk Bay. Nagbhusnam and Rao listed 6 species from Orissa coast. James reported nearly species of echinoderms from various places along the east and west coasts of India, the Andaman and Nicobar

Islands and the various islands of Lakshadweep. Soota, Mukhopadhyay and Samanta listed 18 unnamed holothurian species of the Andaman and Nicobar Islands which were collected by them and some were deposited in the Zoological Survey of India. Badal Chandra Bharati Goswami recorded 5 speices from the Digha coast. In India, about species have been recorded from the different coasts. Within this only 50 species have been recorded from the entire west coast. Clark reported about 75 crinoid species from the Indian region in his list of Indo-West Pacific species. Habit and Habitat of Echinoderms: They inhabit all the seas and in all latitudes. Echinoderms are found from the intertidal zone to the depth of about 6, m. Almost all the Echinoderms are benthonic and live in all types of sea bottoms. Asteroids crawl on the bottom and a few forms, belonging to the family Benthopectinidae, swim by the arms. Some Holothurians like Holothuria, Stichopus, Actinopyga, are adapted to the sandy bottom. Leptosynapta spends entire life being completely buried in soft bottoms and they move under the surface. Echinoids are also benthonic animals and keep the oral surface of the body in contact with the substratum. Some Echinoids are rock-borers and make bores like honey-combs in the rocky wall. The typical rock-boring Echinoids are Psammechinus miliaris and Paracentrotus lividis. The Ophiuroids inhabit all sorts of sea-beds. They remain attached to other objects by their flexible arms. They exhibit various types of movement by the arms. Some Ophiuroids have the habit of burrowing in sand as seen in Amphiura chiajei. The crinoids are shallow-water inhabitants, except the stalked forms which occur mostly in deep sea ranging from m. Most of the Echinoderms are sluggish animals and move very slowly. They can either crawl on the surface or may swim in water by the arms. The ophiuroids are the most active forms amongst the Echinoderms. The Crinoids are more or less sedentaric animals. Most of the adult Crinoids are stalked and remain fastened to the bottom by aboral side of the body directly or through a stalk. The Jeep sea forms are generally stalked. A few Crinoids detach themselves from the stalk in adults and usually lead free and pelagic life. Echinoderms are gregarious animals and usually live in large groups. They are mostly nocturnal. They are bottom feeders and eat all sorts of food available in the sea bottoms. Most of them are carnivorous but several herbivorous forms are also known. The sizes of Echinoderms are relatively moderate. The largest Asteroid known is Pycnopodia helianthoides which measures about 90 cm. The largest urchin living in the deep sea realms is Echinosoma hoplacantha whose shell is about 31 cm across. Synapta maculata, a Holothurian, has 16 cm long body with the diameter of about 6 cm. The stem of some fossilised Crinoids is about 2 m in length. Shape and Symmetry of Echinoderms: The phylum Echinodermata constitutes a very well-defined group. The disposition of both internal and external structures also exhibits radial symmetry in Echinoderms which is an exception among the Coelomata. All the Echinoderms have a pentamerous body plan and have distinct oral and aboral surfaces. But the position of anus varies quite greatly Fig. In some Echinoids and Crinoids, the anus is placed on the oral surface. The anus may be totally wanting in a few adult Asteroids and Ophiuroids. The symmetry of the body has moulded all the organs of the body. Externally, the radial symmetry is exhibited by radii and inter-radii. The radii are marked by rows of tube-feet and the inter-radii are the portions of the body between the radii. But in some Holothurians, the tube-feet may spread over the inter-radii of the body.

Chapter 3 : Echinoderm - Simple English Wikipedia, the free encyclopedia

Classification keys A key is a set of questions about the characteristics of living things. You can use a key to identify a living thing or decide which group it belongs to by answering the questions.

Baldwin Received Oct 17; Accepted Nov This article has been cited by other articles in PMC. Abstract Meloidoderita salina sp. This new species is the first member of Meloidoderita Poghossian, collected from a saline environment, and is characterized by the following features: The adult female transforms into a cystoid. Eggs are deposited in both egg-mass and cystoid. Cystoids of Meloidoderita salina sp. Male without stylet, pharyngeal region degenerated, S-E duct prominent, deirids small, developed testis Additionally, some young malesof the new species were observed enveloped in the last J2 cuticle. Phylogenetic analyses based on the nearly full length small subunit ribosomal DNA sequences of Meloidoderita salina sp. Atriplex portulacoides, cystoid, halophyte, hexagonal, morphology, morphometrics, nematode, new species, sea purslane, SEM, SSU rDNA, taxonomy Introduction Since Poghossian established the genus Meloidoderita Poghossian, to accommodate the new species Meloidoderita kirjanovae Poghossian, , two other Meloidoderita species have been described. Meloidoderita kirjanovae was isolated from roots of mint Mentha longifolia L. Afterwards, after examining five females identified as Meloidoderita kirjanovae and on the basis of the presence of a large egg-sac gelatinous matrix , short stylet, the absence of a cyst, and pronounced galls in the observed roots, Wouts considered Meloidoderita as a valid genus belonging in Meloidogynidae Skarbilovich, Wouts Kirjanova and Poghossian re-described Meloidoderita kirjanovae and established a newly erected family, Meloidoderitidae, within Criconematidea Taylor, Thorne Moreover, Poghossian reported that the material examined by Wouts probably had been contaminated by Meloidogyne hapla Chitwood, Meloidoderita kirjanovae has been recorded parasitizing on Mentha spp. The second species of Meloidoderita, Meloidoderita safrica, was described by Van den Berg and Spaull from soil and root samples of sugarcane Saccharum hybrid in South Africa. Previously, Golden and Andrews et al. This nematode was infecting roots of sea purslane Atriplex portulacoides growing in a muddy soil salt marsh region. Preliminary morphological and molecular analyses G. Karssen, unpublished indicated that the population differed from all three known described species of Meloidoderita and represented a new species. This was the first Meloidoderita species collected from a salt marsh environment. The main objectives of the present study were to: Samples were collected during the months of March, June, September, and December in The tides cover the area where Atriplex portulacoides grows about twenty times a year. The Mont-Saint-Michel Bay is a specific ecosystem on a small geographic scale. Despite the presence of numerous ecological studies that have been applied since in MSMB, nematodes have been mostly neglected Lefeuvre et al. Nematode extraction and comparison To obtain a homogenized sample of the cohesive muddy soil, we gently mixed samples in a kneading machine for 15 min. Afterwards, nematodes including juveniles, males, cystoids, and eggs, were extracted from soil samples by means of a magnesium sulphate centrifugal flotation technique Coolen Females were collected with two different methods: Root samples were washed with tap water under low pressure to prevent damage to the nematodes. Host and origin of the populations of three Meloidoderita species and one Sphaeronema species which were compared with the population of Meloidoderita salina sp.

Chapter 4 : Idiopathic Juxtafoveolar Retinal Telangiectasis: A Current Review

Cystoids from the Trenton Rocks of Michigan. Contributions from the Museum of Paleontology - University of Michigan, calendrierdelascience.com, Number 4. Contributions from the Museum of Paleontology - University of Michigan, calendrierdelascience.com, Number 4.

Only with the crinoids is it necessary to deal with the fossil forms, because the stalked crinoids were so important on the Palaeozoic sea floors. General account[change change source] Early pluteus larva of Echinocardium cordatum All echinoderms have fivefold radial symmetry in their body at some stage of life. The holothurians have bilateral symmetry as adults, and do not have so much of a skeleton as other groups. Echinoderms have a hydraulic water vascular system. This network of fluid-filled canals moves and feeds the animal, and allows gas exchange. There is also a complete digestive tube. They have a simple radial nervous system that consists of a modified nerve net. There are nerve rings with radiating nerves around the mouth extending into each arm. The branches of these nerves coordinate the movements of the animal. Echinoderms have no brain , although some do have ganglia. They usually move with their tube feet, but brittle stars use their arms to pull against rocks. Some feather stars and sea cucumbers can swim. The sexes are usually separate. Sexual reproduction typically consists of releasing eggs and sperm into the water, with fertilization taking place externally. Their larvae are planktonic. Many echinoderms have remarkable powers of regeneration. A starfish arm cut off will regenerate. A section as small as a single arm, with some central disk and neural tissue, can regenerate the whole organism. Echinoderm larvae[change change source] Most of the adults have radial symmetry. If they are not sessile or attached, they are at least benthic bottom-dwellers. In contrast, echinoderm larvae are planktonic , and have bilateral symmetry. The first stage in all groups except the crinoids is the dipleurula, which has a row of cilia winding round its body. All the groups have second and third stage larvae. The larvae grow, and are carried away from their parents. Later, the adult body grows into a radial form, with the body arranged in five parts around a central axis. This means they often have a star-shaped pattern. Evolution[change change source] There is no geological evidence about the origin of echinoderms. The first undoubted fossils in the Lower Cambrian are already well developed, and fall into five or six different groups. Arkarua , from the Ediacaran , is thought to be an echinoderm. Tribrachidium is another possible, from the same period. On general biological grounds, it seems that echinoderms, and some related phyla, may have been derived from worm-like ancestors. With the chordates and hemichordates , echinoderms are deuterostomes , one of the two major divisions of the animal kingdom.

Chapter 5 : BBC Bitesize - What are classification keys?

to the cystoids; and the flat aboral (dorsal) surface is unlike that in any crinoid. Other points of dissimilarity could be mentioned. Despite our ignorance of parts of their morphology, we can clearly separate the cyclocystoids from other echinoderms. Hence, they make up the class Cyclocystoidea.

Arteriovenous fistula Pathogenesis The cellular origin of IH has been shown to be related to clonal expansion of a hemangioma-initiating multipotent stem cell, 5 which expresses the marker CD and has the capacity to form human blood vessels expressing erythrocyte-type glucose transporter protein-1 GLUT-1 and merosin. This vasculogenic activity appears to be confined to hemangioma-derived stem cells only. Hemangioma endothelial cells also appear to be fundamentally different from normal endothelial cells, with constitutive low expression of vascular endothelial growth factor receptor VEGFR 1 and missense mutations in genes encoding VEGFR2 and TEM8 tumor endothelial marker 8 , suggesting a germline mutation leading to variant downstream signaling in the vascular endothelial growth factor VEGF pathway. This girl with a right facial hemangioma demonstrates the three-stage life cycle of IH, consisting of the proliferating phase A age 3 months , involuting phase B age 18 months , and involuted phase C age 7 years. IH immunostains positively for GLUT-1 throughout its life cycle and is negative in most other vascular lesions. In the proliferative phase, IH consists of plump, rapidly dividing endothelial cells, and pericytes that form tightly packed sinusoidal channels. A characteristic ultrastructural feature of this phase is the presence of multilaminated basement membranes. Increased angiogenesis is seen in this phase as documented by the expression of VEGF, matrix metalloproteinase MMP -2, proliferating cell nuclear antigen, and basic fibroblast growth factor. These markers of angiogenesis and cell proliferation are not seen in vascular malformations. In the involuting phase, there is gradually decreasing endothelial activity and luminal enlargement. Apoptosis is seen in endothelial cells before 1 year and peaks in 2-year-old specimens. Increasing fibrosis, stromal cells such as mast cells, fibroblasts, and macrophages , and expression of tissue inhibitor of metalloproteinase-1, a suppressor of new blood vessel formation, is seen. Clinical Features Hemangiomas typically appear at birth or within the first 2 weeks of life. The clinical appearance depends on depth, location, and stage of evolution. The current morphological classification system for hemangiomas separates them as localized, segmental, or multiple. Localized hemangiomas present as focal, tumor-like growths that are contained to one defined cutaneous region and fail to demonstrate a linear or geometric pattern. Segmental hemangiomas are less common than the localized lesions and are generally more plaquelike in presentation. Segmental lesions also demonstrate a geographic distribution over a specific cutaneous region and are more likely to be associated with various complications, require more aggressive therapy, and have a poorer overall outcome. In typical hemangiomas, the majority of proliferation occurs during a rapid growth phase in the first 6 to 8 months with cessation of growth by 1 year of age. At this stage, the tumor is typically in its most florid presentation. The clinical presentation of the superficial component includes a bright red, well-demarcated, slightly elevated noncompressible plaque. Hemangiomas deeper in the dermis and subcutaneous tissue are usually soft, warm, ill-defined subcutaneous masses that have a slightly bluish hue. Often, hemangiomas have both superficial and deep components. In the involuting phase, the florid crimson color of IH fades to a dull purplish hue, with increased pallor of the skin and decreased turgor of the tumor. This phase marks the regression of the tumor, and typically lasts anywhere from 2 to 10 years. In many children the involuting phase results in virtually normal skin, but in a number of cases children with hemangiomas will exhibit residual telangiectasias, pallor, atrophy, textural changes, and sometimes residual fibrofatty tissue. Bulky and large lesions may regress completely, while a flat superficial hemangioma may lead to permanent alteration in the texture of the skin. Complications While most hemangiomas resolve without complication, a considerable number result in functional impairment or permanent disfigurement. Those at greatest risk are large, segmental lesions of the lip, perineum, or intertriginous regions. Ulceration results from necrosis and usually occurs during a period of rapid growth. In addition to rapidly enlarging hemangiomas, ulceration has a high risk of occurrence in the anogenital region due to moisture and frictional stress, which results in extreme pain on urination and

defecation. Location also plays a major role in determining the likelihood of complications. Hemangiomas of the eyelid or in the periocular region can cause astigmatism, strabismus, and, in severe cases, amblyopia. Large hemangiomas on the pinna of the ear can cause deformation of the external ear or temporary conductive hearing loss. Hemangiomas of the airway may be life-threatening because of their potential for proliferation and eventual airway obstruction. Infants with subglottic hemangiomas often present with hoarseness and stridor. These lesions in infants 6 to 12 weeks old are of particular concern as they may progress rapidly to respiratory failure. In rare cases, multiple usually greater than five cutaneous hemangiomas diffuse hemangiomatosis and large facial hemangiomas are associated with visceral hemangiomas. These infants present from birth to 16 weeks of age with a triad consisting of congestive heart failure, hepatomegaly, and anemia, resulting in higher morbidity and mortality rates. An association between hepatic hemangiomas and hypothyroidism has also been reported, due to the production of type 3 iodothyronine deiodinase by the tumor. Hence, thyroid-stimulating hormone levels should be monitored in these infants. While the liver is the most common internal organ involved, the gastrointestinal tract, brain, and lung are also common sites. Congenital Hemangiomas These lesions are a unique subset of vascular tumors, distinct from IHs. Unlike IH, these rare lesions present fully grown at birth and do not demonstrate the rapid neonatal proliferation characteristic of IH. These lesions do not stain for GLUT-1, but have similar location, size, appearance, gender ratio, and histological and radiological features as IH. It can result in sufficient shunting to cause high-output congestive cardiac failure. NICH presents as a well-circumscribed, plaquelike tumor with a pink, blue, or purple hue, central coarse telangiectasia, and a pale rim A 1 year-old boy with noninvoluting congenital hemangioma NICH involving the right thigh diagnosed at birth. Characteristic morphology is that of a well-circumscribed, plaquelike tumor with a pink, blue, or purple hue, central coarse telangiectasia, and a pale rim. MRI demonstrates lesion to involve the skin and subcutaneous tissues superficial to the muscle fascia. Differential Diagnoses While the clinical phases of proliferation and involution usually make the diagnosis clear, a deep lesion in the neck or trunk may cause confusion with an LM. Similarly, a superficial hemangioma in an extremity may resemble a CM. In these cases, ultrasonography or magnetic resonance imaging MRI may be useful to confirm a diagnosis. Another differential is pyogenic granuloma, which unlike hemangiomas rarely appears before 6 months of age mean age 6. These lesions grow rapidly and may form a stalk or pedicle with epidermal breakdown. Radiological Characteristics Ultrasonography of a proliferating-phase hemangioma demonstrates a distinct shunting pattern, consisting of decreased arterial resistance and increased venous velocity. Even an experienced ultrasonographer can have difficulty distinguishing a young hemangioma from an AVM because both are rheologically fast flow. An MRI with contrast is the gold standard imaging modality, but it requires sedation or general anesthesia if the child is younger than 6 years old. MRI reveals parenchymatous solid tissue of intermediate intensity on T1-weighted spin-echo images and moderate hyperintensity on T2-weighted spin-echo images. Prominent flow-voids are located around and within the tumor, indicating rapid flow in feeding arteries and dilated draining veins. At some time in the late involuting phase, hemangiomas become slow-flow lesions, often with prominent fatty parenchyma. Association with Dysmorphic Features There are instances in which hemangiomas appear to be associated with certain dysmorphic conditions. The large facial hemangioma is usually plaquelike and segmental in nature. There is a marked female predominance ratio of affected girls to boys, 9: However, other central nervous system lesions have been shown. Common arterial abnormalities of the head and neck include agenesis, hypoplasia, stenosis, dysplasia, aneurysms, and anomalous branches of the major cerebral arteries. Incidence is unknown but potential neurologic defects such as developmental delay or seizure disorder, Horner syndrome, stroke, and progressive neurologic disease have been reported. Cardiac abnormalities include coarctation of the transverse aorta, but congenital heart defects such as ventricular septal defects and patent ductus arteriosus may also be seen. Eye abnormalities include optic nerve hypoplasia, persistent retinal vessels, and microphthalmia. Sporadic reports of endocrinopathies, including hypothyroidism and hypopituitarism, and intracranial hemangiomas associated with PHACE can also be found in the literature. Hemangiomas located over the lumbosacral spine appear to also be a component of abnormal morphogenesis as they may be associated with occult spinal dysraphism or genitourinary anomalies. Of greatest concern are those lumbosacral hemangiomas

that appear segmental, span the midline, and are flat or telangiectatic. Early detection and therapeutic or surgical intervention are important to prevent permanent neurologic sequelae. Management The management of hemangiomas remains controversial, with a large and growing number of medical and surgical modalities. Due to the wide spectrum of clinical presentation and the potential for rapid change in early infancy, it can be challenging to predict which hemangiomas will be innocuous and which will be problematic. While the decision to treat hemangiomas that impair function or are life-threatening, such as those occurring in the periocular region, airway, liver or gastrointestinal tract, is obvious, the decision to treat less-threatening hemangiomas often depends on the location of the hemangioma, size, and growth phase as well as the age of the patient at the time of evaluation. The majority of IH will involute with time, leaving normal or slightly blemished skin only. Reassurance of the parents and regular follow-up visits are essential to monitor for local complications and progression of the hemangioma. Management and treatment of ulcerated hemangiomas should focus on healing the open wound, preventing secondary infections, and alleviating pain. Local wound care may include compresses for gentle debridement of thick crust and exudate reduction, barrier creams, such as zinc oxide or hydrophilic petroleum, applied to the surface of the hemangioma, and occlusive dressings to serve as barriers and prevent desiccation. Viscous lidocaine may help control pain. Topical antibiotics may be efficacious for superficial ulcerations, whereas oral antibiotics may be necessary if overt secondary infection is present and oral pain medicines may be required for pain.

Chapter 6 : Cystoidea - Wikipedia

Notes on cystoids - Volume Issue 5 - C. R. C. Paul Skip to main content We use cookies to distinguish you from other users and to provide you with a better experience on our websites.

British stages[edit] The Tremadoc corresponds to the modern Tremadocian. The Floian corresponds to the lower Arenig; the Arenig continues until the early Darriwilian, subsuming the Dapingian. The Llanvirn occupies the rest of the Darriwilian, and terminates with it at the base of the Late Ordovician. The Sandbian represents the first half of the Caradoc; the Caradoc ends in the mid-Katian, and the Ashgill represents the last half of the Katian, plus the Hirnantian. Gondwana started the period in equatorial latitudes and, as the period progressed, drifted toward the South Pole. Early in the Ordovician, the continents of Laurentia in present-day North America , Siberia , and Baltica present-day northern Europe were still independent continents since the break-up of the supercontinent Pannotia earlier , but Baltica began to move towards Laurentia later in the period, causing the Iapetus Ocean between them to shrink. The small continent Avalonia separated from Gondwana and began to move north towards Baltica and Laurentia, opening the Rheic Ocean between Gondwana and Avalonia. The Taconic orogeny , a major mountain-building episode, was well under way in Cambrian times. In the early and middle Ordovician, temperatures were mild, but at the beginning of the Late Ordovician, from to Ma, volcanoes along the margin of the Iapetus Ocean spewed massive amounts of carbon dioxide, a greenhouse gas, into the atmosphere, turning the planet into a hothouse. Initially, sea levels were high, but as Gondwana moved south, ice accumulated into glaciers and sea levels dropped. At first, low-lying sea beds increased diversity, but later glaciation led to mass extinctions as the seas drained and continental shelves became dry land. During the Ordovician, in fact during the Tremadocian, marine transgressions worldwide were the greatest for which evidence is preserved. These volcanic island arcs eventually collided with proto North America to form the Appalachian mountains. By the end of the Late Ordovician the volcanic emissions had stopped. Gondwana had by that time neared the South Pole and was largely glaciated. Ordovician meteor event[edit] The Ordovician meteor event is a proposed shower of meteors that occurred during the Middle Ordovician period, roughly million years ago. It is not associated with any major extinction event. The Ordovician was a time of calcite sea geochemistry in which low-magnesium calcite was the primary inorganic marine precipitate of calcium carbonate. Carbonate hardgrounds were thus very common, along with calcitic ooids , calcitic cements, and invertebrate faunas with dominantly calcitic skeletons. Biogenic aragonite , like that composing the shells of most molluscs , dissolved rapidly on the sea floor after death. During this icy stage, sea level seems to have risen and dropped somewhat, but despite much study the details remain unresolved. By contrast, today the concentration is just above ppm. But over time, the climate became cooler, and around million years ago, the ocean temperatures became comparable to those of present-day equatorial waters. Shallow clear waters over continental shelves encouraged the growth of organisms that deposit calcium carbonates in their shells and hard parts. As the Ordovician progressed, we see evidence of glaciers on the land we now know as Africa and South America, which were near the South Pole at the time, and covered by ice caps. Life[edit] A diorama depicting Ordovician flora and fauna. For most of the Late Ordovician life continued to flourish, but at and near the end of the period there were mass-extinction events that seriously affected planktonic forms like conodonts and graptolites. The trilobites Agnostida and Ptychopariida completely died out, and the Asaphida were much reduced. Brachiopods , bryozoans and echinoderms were also heavily affected, and the endocerid cephalopods died out completely, except for possible rare Silurian forms. Fauna[edit] Nautiloids like Orthoceras were among the largest predators in the Ordovician. On the whole, the fauna that emerged in the Ordovician were the template for the remainder of the Palaeozoic. The ecological system reached a new grade of complexity far beyond that of the Cambrian fauna, [19] which has persisted until the present day. Articulate brachiopods, in particular, largely replaced trilobites in shelf communities. Trilobites and brachiopods in particular were rich and diverse. Although solitary corals date back to at least the Cambrian , reef -forming corals appeared in the early Ordovician, corresponding to an increase in the stability of carbonate and thus a new abundance of calcifying animals. Now-extinct marine

animals called graptolites thrived in the oceans. Some new cystoids and crinoids appeared. It was long thought that the first true vertebrates fish â€" Ostracoderms appeared in the Ordovician, but recent discoveries in China reveal that they probably originated in the Early Cambrian. During the Middle Ordovician there was a large increase in the intensity and diversity of bioeroding organisms. This is known as the Ordovician Bioerosion Revolution. Several groups of endobiotic symbionts appeared in the Ordovician. Nevertheless, the trilobites remained abundant, all the Late Cambrian orders continued, and were joined by the new group Phacopida. The first evidence of land plants also appeared see evolutionary history of life. In the Middle Ordovician, the trilobite-dominated Early Ordovician communities were replaced by generally more mixed ecosystems, in which brachiopods, bryozoans, molluscs, cornulitids , tentaculitids and echinoderms all flourished, tabulate corals diversified and the first rugose corals appeared. The planktonic graptolites remained diverse, with the Diplograptina making their appearance. Bioerosion became an important process, particularly in the thick calcitic skeletons of corals, bryozoans and brachiopods, and on the extensive carbonate hardgrounds that appear in abundance at this time. One of the earliest known armoured agnathan " ostracoderm " vertebrate, Arandaspis , dates from the Middle Ordovician. Trilobites in the Ordovician were very different from their predecessors in the Cambrian. Many trilobites developed bizarre spines and nodules to defend against predators such as primitive eurypterids and nautiloids while other trilobites such as Aeglina prisca evolved to become swimming forms. Some trilobites even developed shovel-like snouts for ploughing through muddy sea bottoms. Another unusual clade of trilobites known as the trinucleids developed a broad pitted margin around their head shields. In the background is the cyclostome bryozoan Corynotrypa. Fossil Mountain, west-central Utah; Middle Ordovician fossiliferous shales and limestones in the lower half. Outcrop of Upper Ordovician rubbly limestone and shale, southern Indiana; College of Wooster students. Outcrop of Upper Ordovician limestone and minor shale, central Tennessee; College of Wooster students.

Chapter 7 : Hexylresorcinol | C12H18O2 - PubChem

A modern classification. Asterozoa: about 1, species that catch prey for their food. Asteroidea: the starfish. Sea daisies, notable for their unusual water vascular system. Only two species, now merged into Asteroidea. Ophiuroidea (brittle stars and basket stars), the largest echinoderms; about 1, species.

This condition is characterized by multiple cysts like areas of fluid in the macula causing retinal swelling or edema. CME is the retinal thickening of macula due to disruption of the normal blood-retinal barrier which leads to leakage from the perifoveal retinal capillaries causing accumulation of fluid within the intracellular spaces of the retina, mainly in the outer plexiform layer. CME is of two types: Pseudophakic cystoids macular edema is when the cause of occurrence is known while nonpseudophakic is the condition where no specific clinical findings have been observed. Symptoms of cystoids macular edema are blurred or decreased central vision. The cause of CME is not completely known though it may be accompanied by various diseases such as uveitis, vein occlusion or diabetes. It is also known to occur commonly after cataract surgery. Various risk factors associated with cystoids macular edema are penetrating keratoplasty corneal transplant , retinal surgery, chronic renal failure, retinal vein occlusion, retinitis pigmentosa, systemic medication and topical prostaglandin analogs for glaucoma.. No significant racial or sex related predilection exists for this condition. However, cystoids macular edema can occur at any age based on the etiology, though advanced age is at higher risk. The global cystoids macular edema market can be segmented based on diagnosis, therapy, and geography. Drug class segment comprises non steroidal anti-inflammatory drugs, anti- vascular endothelial growth factor VEGF agents, carbonic anhydrase inhibitors and steroids. Generally anti inflammatory agents such as corticosteroids and diuretics including acetazolamide are used to treat retinal inflammation. These drugs may be given in the form of eye drops, injection or by oral administration. In certain cases anti- vascular endothelial growth factor VEGF is administered or a laser procedure is carried out to eliminate macular edema. Anti-VEGF therapies with ranibizumab or bevacizumab have demonstrated positive outcomes. Surgical options to treat cystoids macular edema include laser photocoagulation, and vitrectomy. Laser photocoagulation is a therapeutic technique that uses light soured to coagulate tissue. Diagnostic tests include color fundus photography, fluorescein angiography, optical coherence tomography, and auto fluorescence. Out of all these techniques, optical coherence tomography which is a type of visual biopsy provides examination with highest sensitivity and allows early detection though fluorescein angiography is considered as a gold standard. Optical CT helps to confirm diagnosis as well as monitor progress of cystoid macular edema. Tests such as fasting blood sugar, lipid profile and blood pressure, are recommended if conditions such as diabetes or retinal vein occlusion are suspected. Geographically, the cystoids macular edema market can be categorized into four major regions namely North America, Europe, Asia Pacific and Rest of the World. Various clinical trials are being conducted to study the treatment options for cystoids macular edema.

Chapter 8 : Gastrointestinal Disease in Systemic Lupus Erythematosus | Musculoskeletal Key

These are two worksheets ideal for use in the Year 4 science unit, Habitats. Also good for revision. The first worksheet the children are able to cut the animals out and stick them in the correct place.

The Murchisonia and Platyostoma had true spiral shells. Arthropod The largest arthropod of the Paleozoic Era, was the Pterygotus. It was a giant sea scorpion that grew to 10 feet in length. It loved to eat trilobites. It also ate the armored fish. Its jaws could rip through even the toughest armor shell. Molluska The Goniophora, class: It was bivalved, meaning its two shells were of equal size. It was an ancient ancestor of the clam. The Platyceras was another small snail that lived near the crinoids to be sure to find food. Arthropoda Dalmanite was a common trilobite of this period. The extinction of the trilobites may have been due to carnivorous fish and larger arthropods. Arthropoda Myriapod was an early arthropod. It had an exoskeleton, one pair of antennae and a pair of legs on each body segment. Although the number of trilobites were declining, there were still some around. Chordata The first fish were small and jawless and had heavy armor. Agnatha, had a flat head that was round in the front and had horn - like projections that were pointed to the back. It looked a lot like a trilobite. Its two eyes were on one side of its head and it had one nostril and a dorsal fin to help it to balance. The Berkenia had a more narrow shape. It was covered by scales. It had ventral fins and its eyes were on the sides of its head. They ate tiny soft bodied animals that lived in the muddy bottoms of river beds and lakes. Devonian Period The Devonian Period began about million years ago. The name comes from Devon, England where the first fossils were found. Plants continued to thrive on land. It was an important time of rapid change and growth for plant life. By the end of this period, there were jungles of ferns. Life was difficult as the swampy areas where much life was found often dried up as the seas receded. This led to the extinction of many animals. Many fish died, but some made an amazing adaptation. When the water in their pond dried out, they used their short fins to push themselves to ponds where there was water. They also developed primitive lungs that could store oxygen they gulped from the air. This changed the course of life on Earth forever as land animals began the take over of the land. The Devonian Period is often called the Age of Fishes. The water of the sea warmed up and contained less oxygen. Cnidarians Coelenterates The corals loved the shallow seas of the Devonian Period. They formed so many islands that scientists often call this the Age of Corals. Corals like the Caninia, Blothrophyllum and the larger Siphonophrentis were abundant in the shallow seas. Lycophyta Plants had a difficult time adapting to life on land. The swamps often dried up turning lush swamps into deserts. Then the land would flood again and the plants would again flourish. The Rhynia and Asteroxylon were plants that lived in this period. They were spore bearing plants that had no roots, but they did have primitive leaves attached to the stem. Echinodermata The Brittle Star, class: Ophiurordea, was a spiny echinoderm whose arms easily broke off. The modern day echinoderms can grow an arm back to replace any that break. They had tiny tube like feet that moved food to its mouth. Arthropods Spiny trilobites continued to flourish. Terataspis grew to about 20 inches, while the Ceratarges was only at most 2 inches. There were many other arthropods as well. They probably crawled on the bottom of the ocean floor. Chordata Some fish developed lungs and bony skeletons so that they could breathe and move when the ponds dried up. These fish had fins that looked like lobes and are often called lobe-finned fish. Dipterus and Scaumenacia, class: These lobe finned fish could take in oxygen into primitive lungs when their ponds dried out. Their descendants tend to live in fresh water. There were also fish whose fins stretched over bony rays. The Cheirolepis, was a primitive ray-finned fish. It had a skeleton made of cartilage except for its bony head. It grew to about 2 feet. The ray-finned fish of today are the most diversified vertebrates. They live mostly in marine environments. These fish would soon dominate the waters. Molluska The Gigantoceras, class: The nautilus is the only cephalopoda that has a shell it lives in for protection. The shell is heavy, so it has the ability to emit internal gases to give the shell buoyancy in the water. It was very strong and had long, tentacles that it held its prey with. It could emit a dark liquid that clouded the water so that its predators could not follow it. Molluska Air breathing land snails appeared. These are the only mollusks from the class gastropoda to live on land. Snails without shells, the slugs also developed. Chordata Early fish like Anglaspis, class: The

Eurypterids had plier like jaws that could get through the toughest armor. The Dinichthys, terrible fish class: It developed paired fins to swim faster, but its heavy armor still got in the way. It hid in the sea weeds and waited for other smaller fish to swim by. It caught its victims with hinged jaws like a snake and sharp teeth. The fish had to become faster swimmers to survive. It had no armor, but had internal cartilage. It had broad fins, grew to be 2 to 4 feet long, and was the fastest swimmer of the Devonian Period. Pleuracanthus was another primitive shark that grew to about 8 feet long. It had a long spine on the back of its head. Carboniferous Period The Carboniferous Period began million years ago and lasted 40 million years. It is named after carbon which is the main element in coal. Periods of rain and draught continued and the seas advanced and retreated many times. There were huge jungles and swamps. The end of the period brought a drastic changes. Huge forests died out completely and another ice age began. Ice covered the Earth almost to the equator. Coal formed where the forests were buried under deep layers of mud. This period is divided into two sections: The Mississippian during which amphibians first appeared on land, and the Pennsylvanian in which primitive reptiles appeared. Pterophyta Seed ferns also appeared. Ferns, like the Neuropteris, reproduced by seeds. Their seeds were the size of nuts. These ferns no longer needed water to reproduce. Their seeds were fertilized by wind-blown pollen. The modern flowers may be descendants of the seed ferns.

Chapter 9 : Echinoderms: Classification, Habitat and Affinities

know about classification, see if you can arrange these CDs into similar groups to make them easier for your customers to find. Make a list of four groups that these CDs can.