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by a specific histopathology showing giant cells and by inexorable outcome leading to cardiac failure whatever the treatment. We report a case of GCM occurring during immune checkpoint inhibitor treatment.
**Methods:** A 53-year old male patient had nephrectomy for renal cell carcinoma in October 2013. From December 2017 to January 2019, he received 27 cycles of nivolumab, an anti-PD1 antibody, inducing partial metastasis regression without complications. In January 2019 he was admitted for rapidly progressive cardiac failure (Normal coronary angiography; Ejection fraction at 36%, global hypokinetic left ventricle, and edema at echocardiography and MRI; Troponin T at 5,800 □g/L).
**Results:** Endomyocardial biopsy showed GCM with extensive myocyte necrosis. Viral molecular study was negative. Nivolumab was stopped. Intravenous methylprednisolone pulses were given, followed by tapered oral. Cardiac failure, imaging, and biological parameters improved in a few weeks allowing discharge from the hospital. Although we cannot definitely rule out coincidence of immunotherapy and occurrence of a rare type of myocarditis, this case of GCM is very unusual since cardiac failure, biological and imaging parameters improved under steroid treatment and withdrawal of nivolumab.
**Conclusion:** This suggests two hypothesis: 1- GCM could be a second type of myocarditis complicating immune checkpoint inhibitors besides lymphocytic myocarditis; 2- Autoimmunity could be involved in this puzzling type of myocarditis in which so far no viral or immune mechanisms had been documented.

**E-PS-03-004**
**Atresia of common pulmonary vein (ACPV) of fetus: an autopsy analysis**
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**Background & Objectives:** Objective to investigate pathologic manifestations of atresia of common pulmonary vein (ACPV) of fetus by autopsy.
**Methods:** Three pathological specimens of atresia of common pulmonary vein of fetus were studied and who had been found by using echocardiography.
**Results:** Of the 3 casesone was of complete and two were of incomplete atresia of common pulmonary vein. 3 cases were associated with total anomalous pulmonary venous drainage (TAPVD). They also had other complex congenital heart disease and associated with visceral heterotaxy and asplenia. It was different from infant that the fetus was not associated with pulmonary lymphangiectasis.
**Conclusion:** ACPV is an extremely rare congenital heart disease. It is even more difficult to establish a diagnosis of ACPV if not associated with pulmonary lymphangiectasis.

**E-PS-03-005**
**Complex characteristics of various of the heart different forms myocardial infarctions**
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**Background & Objectives:** Coronary heart disease remains one of the topical diseases of medicine, connected mortality its prevalence and a stable first place in the structure of the able-bodied population in most countries of the world. Currently more than 20 risk factors of coronary heart disease have been identified. Atherosclerosis is one of the main causes of coronary artery disease.
**Methods:** A complex morphological and morphometric study of the heart muscle in 247 patients who died from various forms of myocardial infarction (MI) was carried out. Myocardium for morphological investigation from the following area was taken the necrosis zone border zone 2 cm from the necrosis area, opposite to the necrosis of the left ventricle (LV) and the right ventricle (RV) walls. Sections were stained with hematoxylin and eosin, pikrofuksinom, Schiff's reagent. Frozen sections were stained with Sudan III.
**Results:** The zone of necrosis expanded during the first 72 hours. In the zone bordering the infarction, changes interstitial to the necrosis zone were with observed 8-12 hours delayed. At a distance of 2 cm. there were dystrophic, edema. Perivascular edema, vascular plethora were noted in the opposite of the infarction wall of the LV, RV.
**Conclusion:** At recurrent and continuous recurrent MI a pathological process is more extensive and dystrophic changes along the periphery are more apparent. An increase of the heart with a predominance of width over length, an increase in mass by more than 200 grams, and a restructuring of the cardiac tracts corresponding should be considered as the risk limit for MI development.

**E-PS-03-006**
**Myocardium: structure-functional relationship**
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**Background & Objectives:** The Torrent-Guasp theory about unique myocardial band contradicts the data of histological and functional studies. In 2018 a group of authors from 10 universities published 2 articles in which they debunked this concept. But the question, how the myocardium provides a complex trajectory of heart movement, needs further study.
**Objective:** to study the role of myocardial architecture in the formation of a complex trajectory of the heart left ventriculum (LV) movement.
**Methods:** Macroscopy: 10 boiled prepared pig hearts. Microscopy: serial histological sections of 16 fetal hearts (abortion at 20-21 weeks of gestation due to medical reasons, not related to the heart pathology): 10 hearts were cut across, 3 - in the frontal and 3 - in the sagittal planes.
LV mechanics were studied in 35 healthy young volunteers using speckle tracking echocardiography. The longitudinal displacement, rotation angles and degree of myocardial deformation were evaluated for each of 17 myocardium segments.
**Results:** The apex of the heart rotates counterclockwise by 12,5±1,1°, the basal segments – clockwise by 8,3±1,4°. The median LV part doesn't rotate, but moves most of all radially. Basal segments show the maximal longitudinal displacement, apical – minimal, apex - maximal deformation. Myocardium is 3D-cardiomyocytic network, the compact layer of which at the base and apex turn into trabeculae, forming a closed contour. There are bundles in it, the direction of which corresponded to the segmental trajectories of LV movement.
**Conclusion:** Systolic movement of LV myocardium is provided by a consolidated contraction of its different segments in the longitudinal, radial and circulatory directions. The motion vector of each myocardial segment depends on the orientation of its muscle fibers and their contractions sequence. Trabeculae contract first of all and therefore they are initial fulcrum for cardiomyocytes of the compact myocardium.

**E-PS-03-007**
**HSP70 overexpression in calcified aorta affected by atherosclerosis**
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**Background & Objectives:** High levels of HSP70 appear to have atheroprotective effect. It was reposted, that antibodies to HSP70 were increased in patients with vascular disease. Also HSP70 levels correlate with lesion severity. Aim of the investigation was to study the HSP70 expression in aortic tissue with calcifications affected by atherosclerosis.
**Methods:** We examined 30 samples of mineralized aorta with calcifications (group I) and 10 samples of aorta wall tissue without any signs of biomineralization (group II). The group II was considered to be a control group. Histological and immunohistochemical methods were used during the study. Samples were fixed, embedded in paraffin, and analized for HSP70 accumulation using the anti-HSP70 antibody, followed by DAB detection substrate and counterstained with Mayer's hematoxylin.
**Results:** HSP70 expression was increased in aortic tissues with calcifications (23.4±1.28 cells per 1 mm2) in comparison to those without them (11.5±1.14, $p<0.001$, Student test). HSP70 was mostly localized in cells cytoplasm of macrophages, fibroblasts, endothelial cells and smooth muscle cells, also in the tissue around the calcifications.
**Conclusion:** Overexpression of HSP70 was found in several cell types in aortic mineralized tissue affected by atherosclerosis may be regarded as its involvement in the formation of such biominerals.

**E-PS-03-009**

**Angiosarcoma developing in dialysis-related arteriovenous fistulae: two cases with review**

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**Background & Objectives:** Arteriovenous fistula (AVF) is the first method considered for vascular access in patients with renal failure, who require or may require renal dialysis. Recent studies suggest that AVF should not be ligated post-transplant, except in cases of ischemia, infections or aneurysms.
Angiosarcoma in AVF is a very rare complication in non-functioning fistulae, usually after transplant. Typically, presents as an enlarging painful lesion of several months duration, and such conditions should raise concern about this entity.
**Methods:** A retrospective research at Coimbra Hospital and Universitary Center, over a period of 15y, revealed two cases of angiosarcoma in AVF. A 82y-old male under hemodialysis, presenting a 4,5cm painful mass in the right arm, growing over a non-functioning AVF. A 54y-old female with history of renal transplant 15y before, with a pulsatile subcutaneous lesion in the left arm, 9,5cm, clinically diagnosed as an aneurysm of a non-functioning AVF. Both patients were submitted to excisional surgery.
**Results:** Histology showed ulcerated neoplasias with deeply infiltrating borders, compromising the surgical margins, composed of epithelioid cells, with solid growth and focal vascular-like pattern. Neoplastic cells were vimentin and vascular markers - CD31, CD34, ERG and Fli-1 - positive, without staining for keratins. The male patient died 6 weeks after surgery, and the female patient has no known relapse until the moment of submission (1 month after surgery).
**Conclusion:** Angiosarcoma is a rare mesenquimatous neoplasia, deeply invasive with a very aggressive behavior, and a low disease-free survival. The aim of this work is to warn physicians about the developing of angiosarcoma in AVF, particularly in immunosuppressed patients, commonly after transplant.

**E-PS-03-0010**

**Mitral valve caseous calcification with interventricular involvement: presentation of two cases**

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**Background & Objectives:** Caseous calcication of the mitral annulus (CCMA) is a rare variant of mitral annular calcification. Extension of mitral caseous calcification along the fibrous skeleton of the heart is extremely rare. We report two cases in which an extensive involvement of the interventricular septum was revealed during the pathological examination.
**Methods:** A retrospective analysis of the pathology database of Massachusetts General Hospital during the period 2010-2015 was performed in order to identify cases with CCMA with interventricular septum involvement.
**Results:** Two cases were identified. **Case 1.** An 83-year-old man underwent surgical aortic valve replacement. During the surgery, the bicuspid aortic valve was found to be heavily calcified. A large amount of calcium with an area of liquefaction within the interventricular septum was observed, and a septal myectomy was performed. Pathologic examination of the interventricular septum revealed patchy calcification with areas of caseous calcification. **Case 2.** A 70 year old female died on the third postoperative day after aortic and mitral valve replacement, left atrial appendage amputation, and decalcification and pericardial patch repair of the mitral annulus. Gross examination of the heart revealed two well-circumscribed, soft, white mass lesions in the interventricular septum focally abutting the mitral valve, which upon histology showed caseous calcification.
**Conclusion:** CCMA is often considered a benign process; it is usually asymptomatic and an incidental finding. However, in the case of interventricular septum involvement, it may cause several conduction system disorders. Such interventricular septum involvement may be misinterpreted as a neoplasm on imaging, prompting unnecessary surgery.

**E-PS-03-011**

**Cardiac Fibroma in 4-month-old infant: a case report**

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**Background & Objectives:** Cardiac Fibromas are benign primary tumours of connective tissue, situated in the heart; especially in the ventricles or in the interventricular septum. The frequency of Cardiac Fibromas is higher in Paediatric population and ranges from 0.03-0.032% in the general population. We report a case about a sudden death of an infant with cardiac fibroma.
**Methods:** The 4-month-old female passed away unexpectedly at home without previous hospitalization. There were no symptoms, but the autopsy examination of the cardiac tissue revealed three white-grey mattered masses composed of fibroblasts located in the ventriclescovering the largest part of the cavity.
**Results:** According to the histological findings, in some parts of the masses were found homomorphous atractoid cells, disseminated and intertwined among collagen fibrils. There were rare inflammatory cell-clumpingsnear healthy tissue, elements of autolysis, median swelling, places of median fibrosis around vessels. There were places of fibrotic connective tissue inside the myocardium, locally myocardial fibers have waveform morphology, layout disorder, while there are inflammatory