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; Tropinin T at 5,800 ng/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.

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**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 cases one 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.

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**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 most topical diseases of medicine, connected mortality its prevalence and a topological 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). 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.

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**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 ventricle (LV) movement.

**Methods:** Macroscope: 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-cardiomyoetic 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 circular directions. The motion vector of each myocardial segment depends on the orientation of its muscle fibers and their contractions sequence. Trabecular contract first of all and therefore they are initial fulcrum for cardiomyocytes of the compact myocardium.
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 painless lesion of several months duration, and such conditions should raise concern about this entity.

Methods: A retrospective research at Coimbra Hospital and University 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 mesenchymatous 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.