

**Research Article**      **Published Date:-2020-04-30 00:00:00**

[Conservative treatment versus invasive approach in elderly patients with myocardial infarction without ST-segment elevation](#)

Myocardial infarction without ST segment elevation is one of the most common causes of hospitalization of the elderly patient [1]. Coronarography followed by revascularization, is performed in the vast majority of cases of myocardial infarction without ST segment elevation, in the regions with a well-developed health system. The decision to perform the procedure, the type of approach (early/late) and the selection of the type of myocardial revascularization depend on numerous factors such as: associated comorbidities, clinical presentation, the risk group in which the patient is framed, fragility, cognitive status, life expectancy etc. [2,3]. Older patients often present with various comorbidities, having a higher risk of complications and an unfavorable evolution. Thus, it was observed that invasively treatment is less commonly used in elderly patients with comorbidities, even if, the current guideline recommends that the invasive strategy should be considered in all patients with NSTEMI, regardless of age. At the same time, this subgroup of patients is not so well represented in the studies performed so far, the type of treatment chosen, being most often at the discretion of the attending physician [1,2].

**Objective** The present study aims to analyze the evolution of a subgroup of patients > 70 years of age, with different comorbidities, with the diagnosis of myocardial infarction without ST segment elevation, according to the type of treatment applied: conservative versus invasive strategy (diagnostic coronarography ± revascularization, if appropriate).

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**Research Article**      **Published Date:-2020-04-24 00:00:00**

[Effects of highest dose of sacubitril/valsartan association compared to lower doses on mortality and ventricular arrhythmias](#)

**Background:** Sudden cardiac death is a major healthcare issue in reduced ejection fraction heart failure (HFrEF) patients. Recently, the new association of sacubitril/valsartan showed a reduction of both ventricular arrhythmias (VA) and mortality even at low dose compared to enalapril in HF patients. The purpose of our study was to assess whether the highest dose of sacubitril/valsartan compared to lower doses may improve the rate of death and VA in a population of patients with HFrEF and with an implantable cardiac defibrillator (ICD).

**Methods:** 104 HF patients with reduced EF under sacubitril/valsartan with an ICD were divided in 2 groups: the first one with the lower doses of sacubitril/valsartan (24/26 mg or 49 mg/51 mg twice daily) and the second with the maximal dose (97mg/103mg twice daily). The primary outcome was a composite of death or appropriate ICD therapy for VA.

**Results:** After a median follow-up of 14 months, 39 patients were treated with lower doses and 65 patients with the highest dose. Patients from the lower doses group were older (70 [60-80] vs. 66 [60-70];  $p = 0,03$ ), more symptomatic at initiation (NYHA 3: 44% vs. 19%;  $p < 0,01$ ) and more often in atrial fibrillation (31% vs. 12%;  $p = 0,04$ ). The primary composite endpoint occurred in 14 patients (36%) in the low doses group versus 7 patients (11%) in high dose group ( $p < 0,01$ ). This difference was particularly observed in the subgroup of patients with ischemic cardiomyopathy. In a multivariable analysis, the higher dose was independently associated with the primary outcome with an HR = 2,934 [IC 95% 1,147 – 7,504];  $p = 0,03$ . Kaplan-Meier curve showed an early effect of the highest dose of sacubitril/valsartan association.

**Conclusion:** Patients with HFrEF under the highest dose of sacubitril/valsartan showed better clinical outcomes with a decrease of both mortality or appropriated ICD therapies related to ventricular arrhythmias.

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**Review Article**      **Published Date:-2020-04-20 00:00:00**

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Atherosclerosis is an important promoter of cardiovascular disease potentiating myocardial infarction or stroke. Current demand in biomedical imaging necessitates noninvasive characterization of arterial changes responsible for transition of stable plaque into rupture-prone vulnerable plaque. in vivo contrast enhanced magnetic resonance (MR) imaging (MRI) allows quantitative and functional monitoring of pathomorphological changes through signal differences induced by the contrast agent uptake in the diseased vessel wall, therefore it is the ideal modality toward this goal. However, studies have so far focused on the cellular targets of persisting inflammation, leaving extracellular matrix (ECM) far behind. In this review, we portray ECM remodeling during atherosclerotic plaque progression by summarizing the state of the-art in MRI and current imaging targets. Finally, we aim to discuss glycosaminoglycans (GAGs) and their functional interactions, which might offer potential toward development of novel imaging probes for in vivo contrast-enhanced MRI of atherosclerosis.

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**Research Article**

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[Recurrence of atrial fibrillation after pulmonary vein isolation, should we change the energy and technique?](#)

**Background:** Pulmonary vein isolation (PVI) is the accepted standard nowadays for atrial fibrillation (AF) ablation. The most widespread ablation techniques are cryoballoon (CB) and point-by-point radiofrequency (RF) ablation. Comparative studies between both techniques have shown their equivalence for the first ablation procedure, but no trial has explored the potential incremental benefit of crossing over the ablation technique after AF recurrence.

**Objective:** To explore the potential incremental benefit of a crossover ablation strategy for AF recurrences, comparatively with repeating the same ablation energy used for the first procedure.

**Methods:** Retrospective analysis of patients undergoing a second AF ablation procedure after documented AF recurrence. Patients were excluded if all 4 PV were isolated at the beginning of the second procedure or extra-PVI ablation was used for the second procedure. Crossover group (n = 16) included patients in which two different techniques were used for the first and second procedure (CB-RF or RF-CB). Control group (n = 23) for those with same ablation procedure (RF-RF or CB-CB). Acute procedure end-point was PVI of all four pulmonary veins. Patients were followed-up at 3, 6, and 12 months with an electrocardiogram and a 24 h-holter. Arrhythmia-free survival at 1?year after the second ablation procedure was studied, comparing efficiency and safety of the two approaches (crossover vs. same energy). Success was defined as freedom from AF or atrial tachycardia lasting > 30 s off antiarrhythmic drugs (AADs)

**Results:** A cohort of 39 paroxysmal and persistent AF patients was analyzed. PVI after the second procedure was 100% in all patients in both groups. There were no baseline relevant differences between the two groups. No deaths or hospitalizations occurred during follow up (data censored at 24h moths). At 1 year, arrhythmia free-survival was significantly higher in the crossover group compared to control group [93,3% vs. 47,8%; HR 0.19 (0.06-0.66);p = 0,009].

**Conclusion:** Crossing the ablation technique (point-by-point radiofrequency or cryoballoon PVI) after AF recurrence significantly improved arrhythmia free-survival at one year, despite no difference in acute success (PVI isolation). Randomized controlled trials with a higher amount of patients are needed to confirm the results and widespread this approach.

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**Review Article**

**Published Date:-2020-03-30 00:00:00**

[Primary prevention of SCD with ICD in the elderly](#)

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Implantable cardioverter defibrillators (ICDs) are electronic devices that can prevent sudden cardiac death (SCD) caused by arrhythmic events in patients.

The latest ESC/EAS and ACC/AHA Guidelines deem the placement of an ICDs appropriate in patients with heart failure class NYHA II and III in the presence of an ejection fraction less than or equal to 35% [1,2]. ICDs are usually not indicated in either class I or IV patients. The Guidelines recommendations for primary prevention of SCD with ICD implantation do not take into account the age of the patients but only their life expectancy which must be at least 1 year.

Our patients usually are over eighty years old with heart failure and severely reduced ejection fraction. We must consequently decide if it is right to implant these patients with an ICD. Is the use of ICD in the patients over 80, in particular over 90 years old, really make sense becomes particularly important considering demographic changes that await us in the coming decades.

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**Review Article****Published Date:-2020-03-25 01:00:00**[Dapt Review](#)

Dual antiplatelet therapy (DAPT) combining aspirin and a P2Y<sub>12</sub> receptor inhibitor has been consistently shown to reduce recurrent major adverse cardiovascular events (MACE) in patients with acute coronary syndrome (ACS) or undergoing percutaneous coronary intervention (PCI) for stable coronary artery disease (CAD) compared with aspirin monotherapy but at the expense of an increased risk of significant bleeding. Among patients with stable CAD undergoing PCI with drug-eluting stents (DES), shorter duration of DAPT (3–6 months) were shown non-inferior to 12 or 24 months duration concerning MACE but reduced the rates of major bleeding? Contrariwise, prolonged DAPT durations (18–48 months) reduced the incidence of myocardial infarction and stent thrombosis, but at the cost of an increased risk of major bleeding and all-cause mortality. Until more evidence becomes available, the choice of optimal DAPT regimen and duration for patients with CAD requires a tailored approach based on the patient clinical presentation, baseline risk profile and management strategy. Patients with acute coronary syndromes (ACS) and a history of atrial fibrillation (AF) have indications for both dual antiplatelet therapy (DAPT) and oral anticoagulation (OAC). Triple therapy (TT), the combination of DAPT and OAC, is recommended in guidelines. This article provides a contemporary state-of-the-art review of the current evidence on DAPT for secondary prevention of patients with CAD and its future perspectives.

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**Research Article****Published Date:-2020-03-25 00:00:00**[A study on pacemaker pocket infection](#)

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Objective: Cardiac implantable electronic device (CIED) infections now constitute ? 10% of all endocarditis cases. The incidence of CIED infection is usually < 2%. Our objective was to study pacemaker pocket infection rate and different risk factors in our institution.

Methods: This observational study was conducted over a period of five years from January 2011 to December 2016 and it included 1096 patients. Common risk factors like patients with diabetes, repeat procedure, chronic renal failure, chronic obstructive airway disease, immunosuppressive agents were studied in our patients.

Results: Our study consisted of 1096 patients. Pacemaker pocket infection occurred in sixteen patients (1.5%). Chronic renal failure patients were one hundred thirty in our study (11.86%). There were three hundred fifty six diabetic patients (32.48%). Repeat procedure was done in ninety five patients (8.6%).

Results: Our study consisted of 1096 patients. Pacemaker pocket infection occurred in sixteen patients (1.5%). Chronic renal failure patients were one hundred thirty in our study (11.86%). There were three hundred fifty six diabetic patients (32.48%). Repeat procedure was done in ninety five patients (8.6%)

Eighty six patients were suffering from chronic obstructive airway (7.8%). Patients on immunosuppressive therapy were fourteen in our study (1.2%).

Conclusion: Pacemaker pocket infections is a dreaded complication after pacemaker implantation. During implantation, there is a risk of device contamination with the patient's own skin flora and it can be prevented by ideal surgical asepsis technique, pre and perioperative use of antibiotics.

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## Research Article

Published Date:-2020-03-06 00:00:00

[Clinical relevance linked to echocardiography diagnosis in Bland, White and Garland syndrome](#)

Introduction: Bland, White and Garland syndrome is a coronary anomaly with high mortality without treatment. Its clinical presentation is varied which makes epidemiological documentation difficult. Echocardiography is a useful non-invasive tool for diagnosis.

Objective: To determine the echocardiographic variables that lead to the diagnosis of Bland, White and Garland syndrome and their clinical relevance.

Material: Observational, prospective and cross-sectional study in 31 patients of the "William Soler" Pediatric Cardiocenter, from 2005 to 2018. To check the association of echocardiographic variables with the diagnosis of Bland, White and Garland syndrome, an effectiveness study was carried out that included the analysis of the incidence of echocardiographic variables that lead to the diagnosis of this entity. The clinical relevance was estimated according to the minimum importance limit. The statistical validation of the research results adopted a significance level of less than 5% ( $p < 0.05$ ).

Results: The variables that facilitate the echocardiographic diagnosis of Bland, White and Garland syndrome were the echocardiographic visualization of the anomalous connection and the reversed flow in the anomalous left coronary artery. These echocardiographic measures have clinical relevance according to the quantification of risk estimators (incidence) the echocardiographic visualization of the anomalous connection, RR 39.00 and the reversed flow in the anomalous coronary artery, RR 26.31. LIM's calculation value amounted to 6.31 and coincided with the risk estimators (incidence).

Conclusion: The echocardiographic visualization of the anomalous origin of the left coronary artery from the pulmonary arterial trunk and the detection of the local intracoronary reversed flow instituted as factors to be considered for the effective diagnosis of the disease. The documentation of the diagnostic aspects of the syndrome through echocardiography contains high statistical value and clinical relevance.

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## Case Report

Published Date:-2020-03-03 01:00:00

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Background: Infants of diabetic mothers (IDMs) are at increased risk of developing congenital anomalies including cardiac defects. Pathological left ventricular hypertrophy, asymmetrical septal hypertrophy and outflow tract obstruction is a rare but known cardiac comorbidity in infants of diabetic mothers. The severity of this condition in IDMs can vary from an incidental finding on echocardiography to an infant with severe symptoms of congestive heart failure and specific management of the condition varies.

Aim: The aim of this article is to report this clinical entity in a Nigerian infant born to a mother with poor glycaemic control in pregnancy and highlight management.

Case report: We report a term neonate who was diagnosed as a case of pathological left ventricular hypertrophy, asymmetrical septal hypertrophy and outflow tract obstruction delivered to a mother with gestational diabetes with poor glycaemic control in pregnancy. Child was treated successfully with  $\beta$ -adrenergic blocker and showed resolution of hypertrophy in follow-up echocardiography.

Conclusion: Infants of diabetic mothers are very high risk infants. Pathological left ventricular hypertrophy in IDM have good prognosis. Early recognition and prompt intervention is advocated.

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**Review Article**      **Published Date:-2020-03-03 00:00:00**

[His bundle pacing in heart failure: A review of current literature](#)

Biventricular (BiV) pacing revolutionized the heart failure management in patients with sinus rhythm and left bundle branch block; however, left ventricular-lead placement is not always technically possible. Also, BiV pacing does not fully normalize ventricular activation and, therefore, the ventricular resynchronization is imperfect. On the other hand, right ventricular pacing for bradycardia may cause or worsen heart failure in some patients by causing dyssynchronous ventricular activation. His bundle pacing comes as an alternative to current approaches as it activates the ventricles via the native His-Purkinje system, resulting in true physiological pacing, and, therefore, is a promising site for pacing in bradycardia and traditional CRT indications in cases where it can overcome left bundle branch block. Furthermore, it has the potential to open up new indications for pacing therapy in heart failure, such as targeting patients with PR prolongation, but a narrow QRS duration. In this article we explore the history, clinical evidence, proposed mechanisms, procedural characteristics, and the role in current therapy of His bundle pacing in the prevention and treatment of heart failure.

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**Review Article**      **Published Date:-2020-02-18 02:00:00**

[ECG interpretation and commentary](#)

This is demonstration of selected ECGs for learning or for exams; guided by lessons from great teachers as Prof. Hein Wellens MD. Here we provide advanced examples with comment and analysis.

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**Review Article**      **Published Date:-2020-02-18 00:00:00**

[Localization of the occluded vessel in acute myocardial infarction](#)

This is a review of features in ECG to diagnose the culprit artery responsible for the infarction. Localization of the occluded vessel in acute myocardial infarction is important for many reasons: to know which artery is to dilate and stent; to assess the severity of the lesion; to compare with the echocardiographic area with hypokinesia or akinesia and to differentiate the recent from the old occluded vessel. The ST-segment changes in 12-lead ECG form the basis of diagnosis, management, and prognosis.

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**Mini Review**      **Published Date:-2020-02-17 00:00:00**

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The involvement of the angiotensin II type 1 receptor in the Frank-Starling Law of the Heart, where the various activations are very limited, allows simple analysis of the kinase systems involved and thence extrapolation of the mechanism to that of angiotensin control of activation of cardiac and skeletal muscle contraction. The involvement of phosphorylation of the myosin light chain in the control of contraction is accepted but not fully understood. The involvement of troponin-I phosphorylation is also indicated but of unknown mechanism. There is no known signal for activation of myosin light chain kinase or Protein Kinase C- $\beta$  other than  $\text{Ca}^{2+}$ /calmodulin but the former is constitutively active and thus has to be under control of a regulated inhibitor, the latter kinase may also be the same.  $\text{Ca}^{2+}$ /calmodulin is not activated in Frank-Starling, i.e. there are no diastolic or systolic  $[\text{Ca}^{2+}]$  changes. I suggest here that the regulated inhibition is by myosin light chain phosphatase and/or  $\beta$ -arrestin. Angiotensin activation, not involving G proteins, is by translocation of the  $\beta$ -arrestin from the sarcoplasm to the plasma membrane thus reducing its kinase inhibition action in the sarcoplasm. This reduced inhibition has been wrongly attributed to a mythical downstream agonist property of  $\beta$ -arrestin.

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## Research Article

Published Date:-2020-01-31 00:00:00

### [Gender-specific associations of anthropometric measures of adiposity with blood pressure and hypertension in young Chinese Medical College Students](#)

**Purpose:** There are uncertainties about whether general or central obesity is the more important determinant for blood pressure and hypertension in young Chinese. We aim to investigate the association between adiposity measures and blood pressure and hypertension in young medical students.

**Methods:** A total of 380 medical students were recruited from the 2012 batch in the Clinical College of Dali University. Anthropometric measures and office blood pressure were measured. Blood pressure status was defined by Chinese hypertension guidelines and ACC/AHA 2017 hypertension guidelines, respectively. We examined the associations of adiposity measures (body weight, body mass index [BMI], waist circumference, hip circumference, waist-to-hip ratio [WHR], waist-to-height ratio [WHtR], ponderal index [PI], body adiposity index (BAI) and conicity index [CI]) with blood pressure and hypertension by sex.

**Results:** In 380 subjects (women 66.6%, mean age 21.5 years), the prevalence of obesity (BMI  $\geq$  28 kg/m<sup>2</sup>) was 2.1%, and the prevalence of hypertension was 2.6% ( $\geq$  140/90 mmHg) and 24.5% ( $\geq$  130/80 mmHg), respectively. In correlation analyses and multivariable-adjusted linear regression analyses, most adiposity measures of central obesity were significantly associated with blood pressure in men, while in women, either adiposity measures of central or general obesity were associated with blood pressure. The predictive power of adiposity measures for hypertension was generally low in men. However, adiposity measures of either general obesity or central obesity were predictive for hypertension defined by Chinese hypertension guidelines in women.

**Conclusion:** There are gender-specific associations of central and general obesity with blood pressure and hypertension in young Chinese medical students.

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## Case Report

Published Date:-2020-01-13 01:00:00

### [Occluded superior vena cava and failed epicardial pacing: An unorthodox solution](#)

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Permanent pacemaker implantation is conventionally done via upper limb veins. But in 1% - 6% cases, usual subclavicular approach is either not possible or contraindicated due to complete occlusion of superior vena cava (SVC) or bilateral subclavian vein and/or bilateral implant site infection or thin skin [1]. Alternative approaches are warranted, including leadless pacemaker or complex lead extraction techniques, before considering surgical epicardial lead placement as a last resort because it has own hazards. We report a patient with complete heart block, total SVC obstruction, and a previously implanted malfunctioning epicardial lead presenting with pacemaker end of life. In view of exhaustion of the surgical option and in a resource constrained situation for lead extraction or leadless pacemaker, transiliac endocardial pacemaker implantation was done and a repeat surgery was averted.

Learning objective: Complete venous occlusion is not very often encountered after pacemaker/ICD implantation. Apart from the risk of general anesthesia and invasive surgery, epicardial leads increase battery drain, and have a shorter operating life compared to an endocardial lead. The sparingly utilized iliac venous approach for permanent pacemaker implantation is a valuable, safe and minimally invasive alternative, when the conventional percutaneous access is unavailable, and surgery is undesirable or not possible.

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**Case Report**                      **Published Date:-2020-01-13 00:00:00**

[Coronary-intercostal steal syndrome, a rare connection between the left circumflex coronary artery and intercostal arteries: A case report](#)

A 60-year-old female patient presented with typical anginal pain on exertion and relieved by rest for about one month. Percutaneous coronary angiography was done and showed an abnormal left circumflex coronary artery connecting to intercostal artery. Embolization of that abnormal connection was done successfully and the patient discharged from hospital after 24 hours. This case shows a new form of coronary steal syndrome. This cause could be missed if not put under the differential diagnosis of typical anginal pain with normal coronary arteries.

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**Research Article**                      **Published Date:-2020-01-09 00:00:00**

[Effect of hemodialysis session on acute changes in inflammatory and cardiovascular risk biomarkers](#)

Background: Inflammation is associated with enhanced cardiovascular risk profile and increased cardiovascular mortality in end-stage kidney disease patients undergoing hemodialysis. Mechanisms of activated acute phase reaction in patients on chronic hemodialysis remain to be identified. As successful treatment of the inflammatory condition in these patients may improve long-term survival, we studied potential changes in different inflammatory biomarkers of cardiovascular risk in end-stage kidney disease patients after a mid-week hemodialysis session.

Methods: Inflammatory biomarkers of cardiovascular risk (cystatin-C, homocysteine, C-reactive protein, procalcitonin, pentraxin-3, serum amyloid-A) and atherogenic plasma lipoproteins (Lipoprotein(a), cholesterol low and high density lipoproteins) were studied in 21 end-stage kidney disease patients previously and after a mid-week hemodialysis session.

Results: We found a significant reduction in serum levels of low molecular weight molecules: cystatin-C (5.56 to 1.85 mg/L, 66.73%,  $p < 0.001$ ), homocysteine (22.85 to 13.25  $\mu\text{mol/L}$ , 42.01%,  $p < 0.001$ ) and procalcitonin (0.788 to 0.457 ng/mL, 42.01%,  $p < 0.001$ ). Large molecules as C-reactive protein (9.70 to 9.90 mg/L, 2.06%,  $p = 0.022$ ) and pentraxin-3 (1.67 to 4.28 ng/mL, 156%,  $p < 0.001$ ) increased, but serum amyloid-A decreased (15.90 to 12.70 mg/L, 20.13%,  $p < 0.05$ ). There was no change in Lipoprotein (a) levels.

Conclusion: Pentraxin-3 was a more specific inflammatory vascular marker than C-reactive protein, and the best inflammatory marker associated with hemodialysis. Homocysteine, procalcitonin and the other small proteins could be released and removed during hemodialysis session. Further studies are needed to understand the behavior and significance of these markers after successive hemodialysis.

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**Review Article**                      **Published Date:-2020-01-08 00:00:00**

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We hypothesize that, with elevated cerebral spinal fluid (CSF) pressure, cerebral micro-vascular obstruction and congestion may occur despite (subdural) large-vein pressures being normal. Smaller veins emptying into these larger, dura-enveloped veins are not immune to the compressive effects of elevated CSF pressure and a “Starling Resistor” mechanism might explain why elevated CSF pressures collapse these smaller veins. This small cerebral venous starling resistor compression mechanism may be the final common pathway for many patients suffering from increased CSF pressures and might also be an important contributor to impaired focal venous drainage presenting as a headache with normal venous sinus pressures.

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