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Ausgaben

06: 445-554
05: 365-444
04: 257-365
03: 175-256
02: 91-174
01: 1-89
S 1: EUROSON 2005 - XVII

- > Inhaltsverzeichnis
- > Aktuelle Ausgabe
- > Kostenlose Probeausgabe (01/2022)

Ähnliche Zeitschriften

> Ultrasound International Open

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THE NUTCRACKER-PHENOMENON OF THE LEFT RENAL VEIN (LEFT RENAL VEIN ENTRAPMENT SYNDROME) – A CLINICALLY RELEVANT VASCULAR VARIANT EASILY DIAGNOSED WITH COLOR DOPPLER SONOGRAPHY

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Kongressbeitrag

Problemstellung: The nutcracker syndrome is regarded a rare disorder with hematuria caused by left renal vein entrapment in the so-called nutcracker (the angle between aorta and superior mesenteric artery). As a consequence left renal vein becomes prominent due to partial or total obstruction of venous outflow. We performed a prospective single-center study to clarify prevalence and symptomatology of this venous anomaly that we called nutcracker phenomenon. Diagnostic criteria in this series were: 1. reduction of venous diameter of more than 50% inside the arterial nutcracker, 2. acceleration of venous flow velocity to more than 100cm/s

Methoden: From 09/2003 to 09/2004 2899 abdominal color Doppler sonographic examinations were carried out in 1604 patients aged 0 to 81 years (mean 8,5 years). Fisher's exact test was used to compare nutcracker phenomenon-patients (NP) with not affected ones (NN).

Ergebnisse: 344 patients (21,4%) fulfilled criteria of left renal vein entrapment (nutcracker-phenomenon). Prevalence of abdominal pain (38% vs. 17%; $p=0,000$) and hematuria (6,1% vs. 1,1%, $p=0,000$) was significantly elevated in the NP group whereas proteinuria didn't occur significantly more frequent (1,5% vs. 0,5%; $p=0,064$). Abdominal pain in NP is typically located in the Nutcracker region itself (median line centrally between xiphoid process and umbilicus) and in the lower left abdomen. Here pelvic congestion is a consequence of collateralization via enlarged ovarica and paravertebral veins. Other relevant collaterals are the so-called "trunc reno-rachidien" (reno-spinal trunk). These patients often suffer from back pain attacks and headaches. If an epidural collateralization of left renal venous blood causes compression of the dural sac and thereby elevated intraspinal, intraforaminal and intracranial pressure cannot be decided with ultrasound alone. Frequent voiding is also often associated with NP related pelvic congestion. Quantification of NP relevance is eased by quantification of left renal perfusion and perfusion measurement in typical collateral pathways.

Schlussfolgerungen: Obstruction of left renal venous outflow frequently occurs. Nevertheless this vascular variant has often clinically relevant disadvantages leading to suffering from chronic complaints: abdominal and pelvic as well as back pain and other symptoms often not regarded to be associated with an abdominal venous anomaly.