

Federal State Budget Educational Institution
of Higher Education «Saratov State Medical University of
Razumovsky»

AGGRESSIVE VERTEBRAL HEMANGIOMAS. REGIONARY BLOODFLOW FEATURES.

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OBJECTIVES

Arterial steal syndrome might be the cause of neurological deficit in vertebral hemangioma (VH) patients.

The aim – to analyze bloodflow state of intercostal and lumbar arteries and veins in vertebral hemangioma patients.

METHODOLOGY

Ultra-sound localization of segmentary blood vessels bloodflow at the damage and coadjacent levels has been done to 26 hemangioma patients and 30 healthy volunteers.

Ultra-sound Dopplerography

Intercostal and lumbar
arteries and veins

Siemens
Acuson S2000

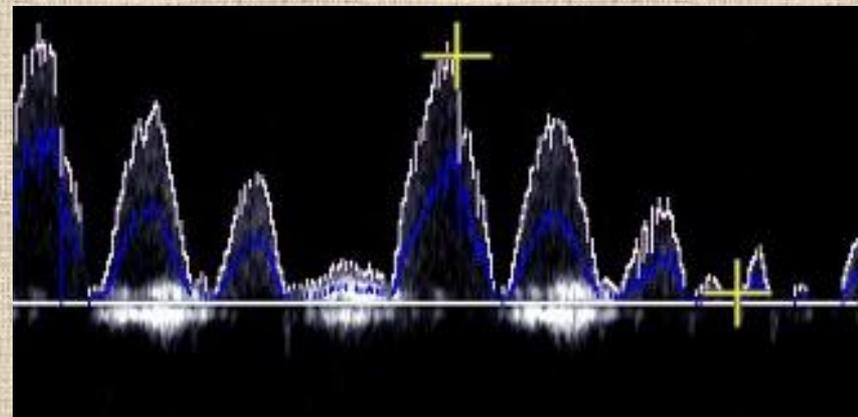
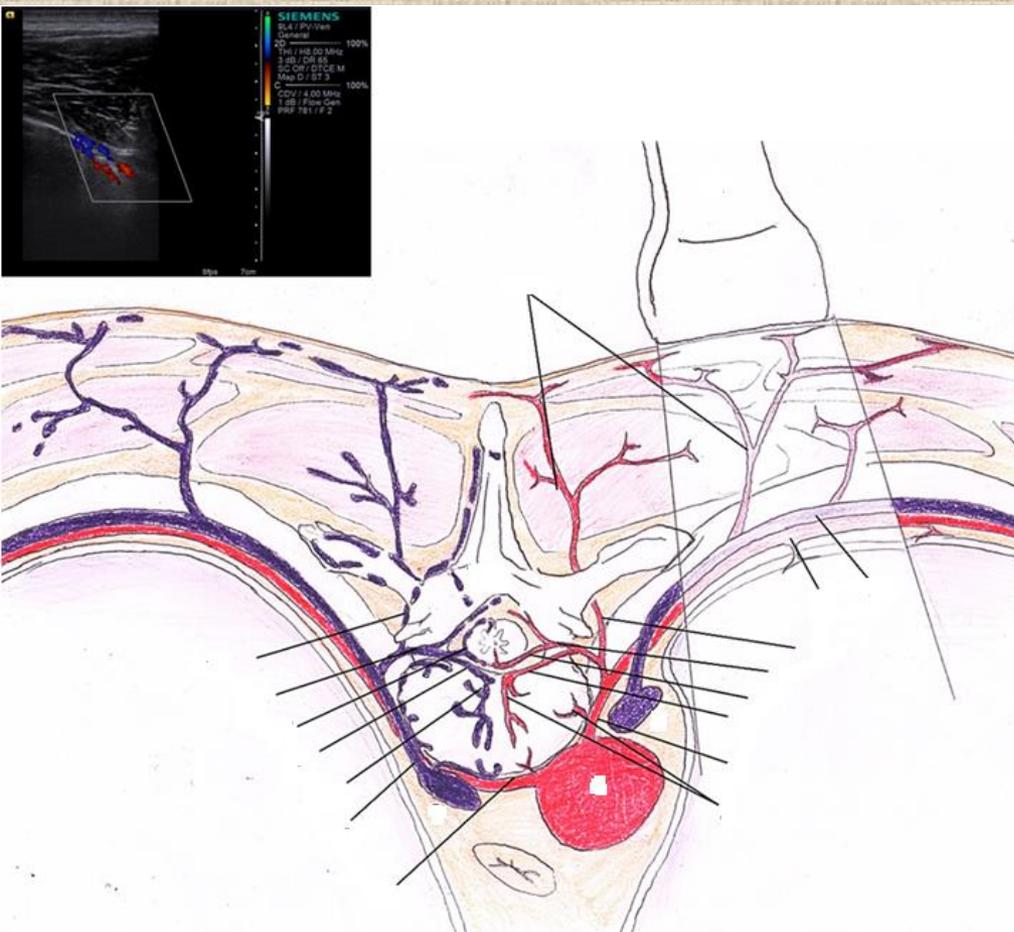
Statistical analysis

Quantitative and
qualitative indexes

Statistica 6.1

METHODOLOGY

Ultra-sound Dopplerography of segmentary arteries and veins (USDG)

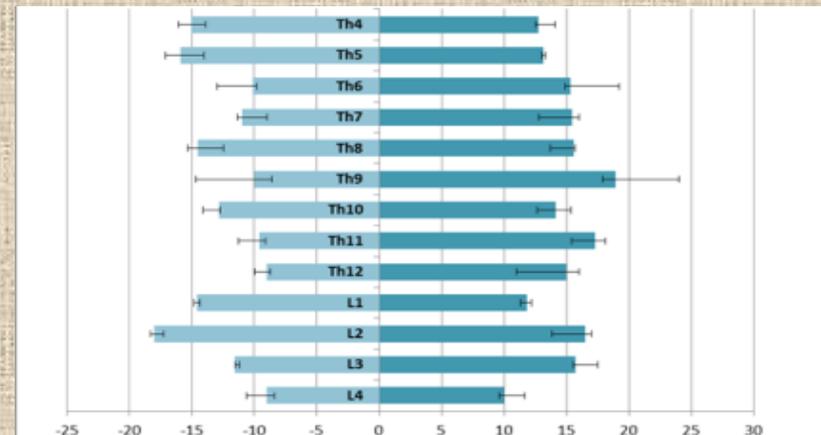
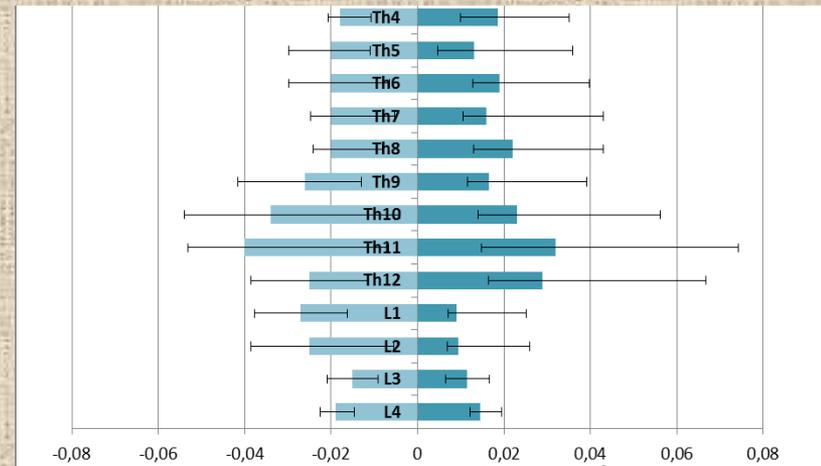


RESULTS

The parameters of bloodflow assessment (in healthy volunteers)

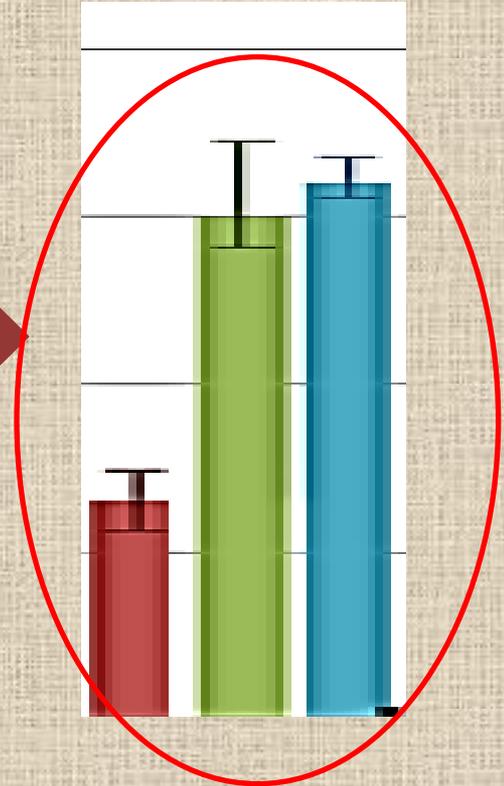
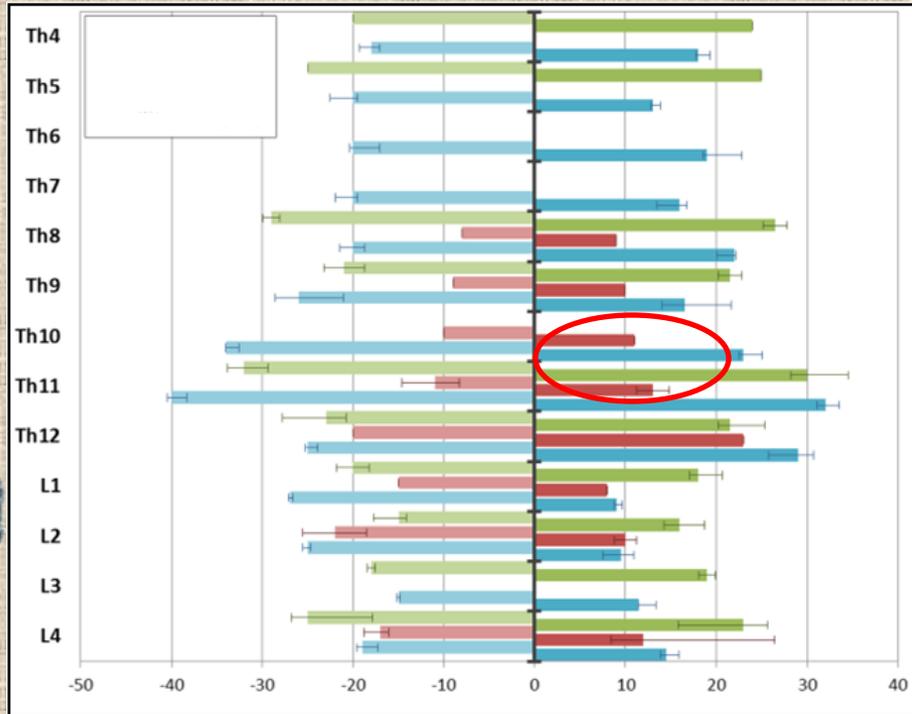
Volumetric arterial
bloodflow

Maximum venous
bloodflow speed



RESULTS

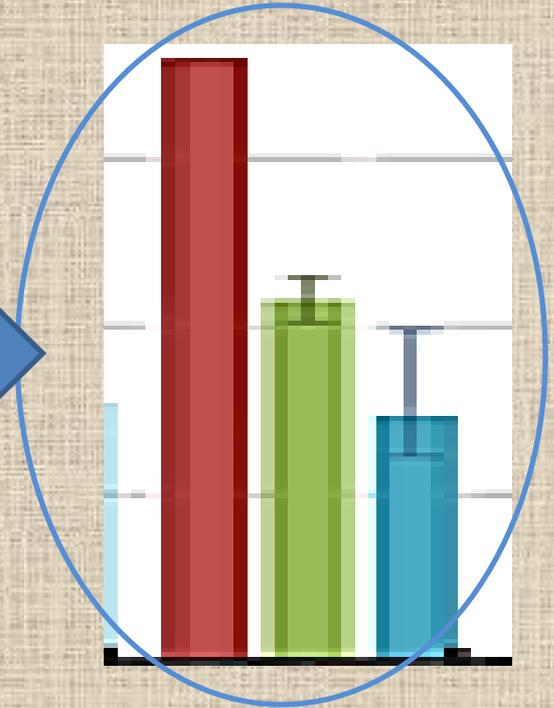
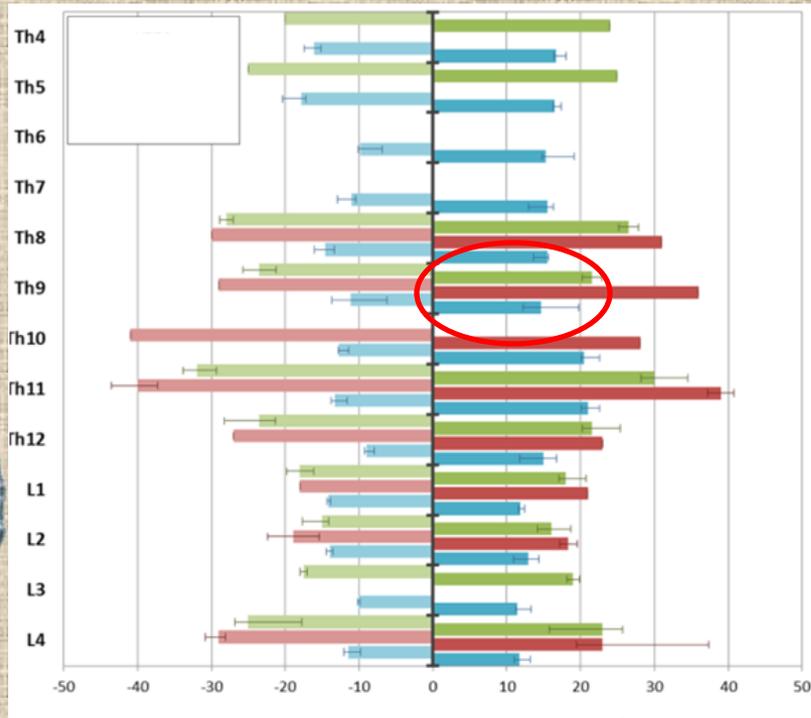
ARTERIAL BLOODFLOW CHANGES



Volumetric bloodflow in segmentary arteries at the hemangioma level in **patients with neurological symptoms** and **neurologically intact patients** compared to **the group of healthy volunteers**.

RESULTS

VENOUS BLOODFLOW CHANGES

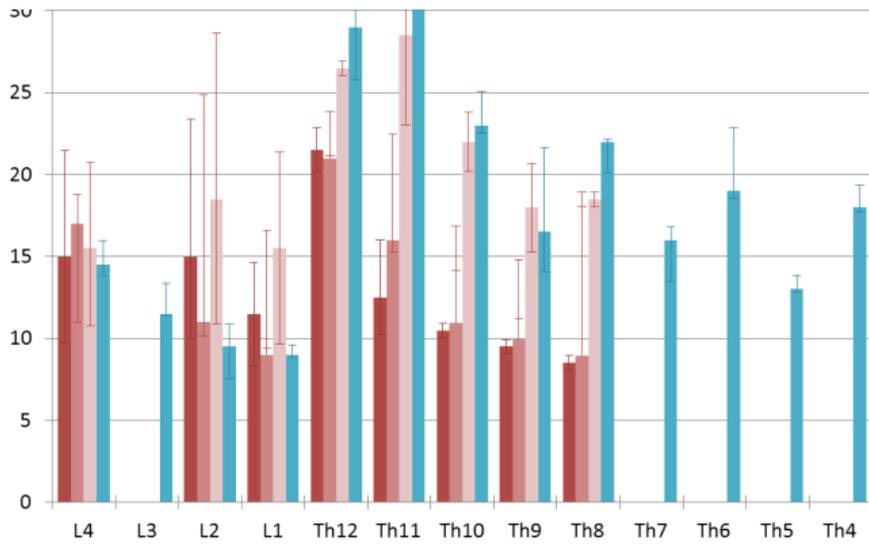


Maximum venous bloodflow speed in segmentary veins at the hemangioma level in **patients with neurological symptoms** and **neurologically intact patients** compared to **the group of healthy volunteers**.

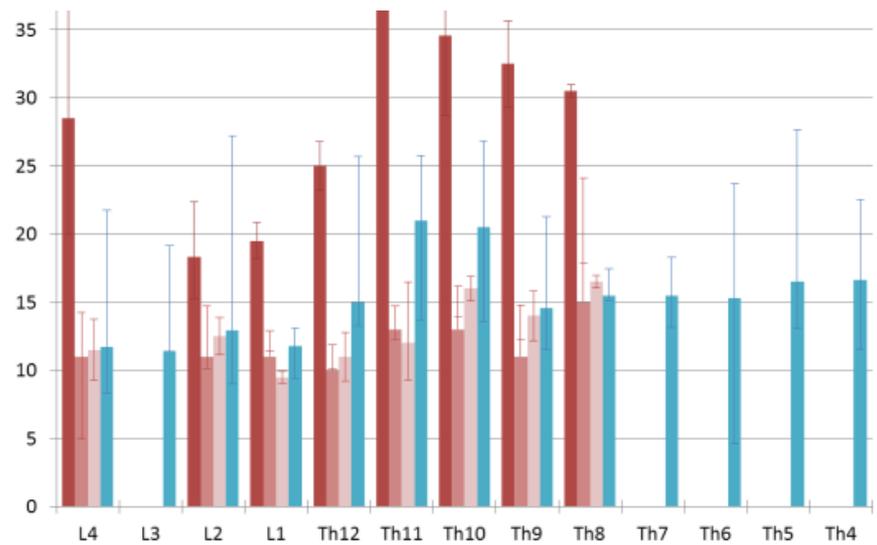
RESULTS

- 5 patients (19.2%) showed lower paraparesis. USDG revealed decreased volumetric bloodflow in the segmentary arteries at the damage level.
- 21 patients (80.8%) without neurologic deficit had only отмечалось increased maximum venous bloodflow in the segmentary veins at the damage level.
- All patients underwent transcutaneous vertebroplasty.
- 1 day postsurgically there was moderate increase in volumetric bloodflow of segmentary arteries at the damage level in neurological deficit patients and 1 month postsurgically the same patients showed volumetric bloodflow increasing to normal values. Venous bloodflow pseudo pulsation has vanished in all 26 patients after the operation.

RESULTS



Volumetric bloodflow in the segmentary arteries at the damage level in neurological deficit patients before the operation, 1 day after the operation and 1 month after the operation compared to the normal values.



Maximum venous bloodflow in the segmentary veins at the damage level in neurological deficit patients before the operation, 1 day after the operation and 1 month after the operation compared to the normal values.

CONCLUSION

- With the help of USDG method the study has revealed patients with vertebral body hemangiomas in the presence of paraparesis clinical signs to have significantly decreased volumetric bloodflow in the segmentary arteries as well as increased venous bloodflow in the segmentary veins at the damage and coadjacent levels. It points to arteriovenous shunt which has hemangioma as its morphological substrate.
- Shunting influence of vertebral hemangiomas can cause arterial steal syndrome in spinal cord.
- Tumor filling with cement eliminates arteriovenous shunt.

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Authors Disclosure Information

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