Vertebrobazilar aneurysms make about 15% of all intracranial aneurysms, from which one fifth belongs to aneurysms a.posterior inferior cerebelli (PICA). Majority of PICA aneurysms is located in the place of separation from a.vertebralis. Aneurysms of distal part of PICA are very rare, according to literature they make 0.5 to 3% of all aneurysms. 70 years old man came to neurologist because sudden headache, pain in the neck and a feeling of stiffness followed by throwing up in stream. On the occasion of medical check up attack of spontaneous subarachnoid hemorrhage was suspected. Clinical gradus according to H&H III, initial CT of endocranium showed existence of smaller intracerebellar hematoma next to lateral wall of IV ventricle and trace of blood in the very ventricle without signs of acute hydrocephalus.

The seventh day after the hemorrhage angio CT was done and it showed existence of aneurysm on distal part of PICA, more specially in the telovelotonzilar segment on the right. After the diagnostics supplemented with standard digital subtracctional an-angiography which confirmed nature and localization of the lesion. In the postponed procedure, and in conformity with strategy of surgical timing of aneurysms in the back circulation, patient was operated three weeks after the attack of hemorrhage.

Disregarding low incidence of existence of aneurysms of distal circulation (under 1% of all in the back circulation) high level of suspicion should be present and angio CT should be done as screening method, if CT shows hemorrhage which according to localization responses to possible aneurysm.

Key words: distal PICA, aneurysms, SAH

INTRODUCTION

The first review of a case of aneurysm in the vertebrobazilar flow probably dates from 1829. Cruveilhier. Afterwards in 1937. Dandy and Tonnis treated two patients with fatal bleeding in the back skull hole - the reason was unknown aneurysm of vertebral artery. Rizzoli and Hayes in 1953. described, for the first time, direct operation of aneurysms in the back flow. The role of surgical microscope in the treatment of aneurysms of the back brain circulation ment revolution in the sense of the identification of the problem, meticulous manipulation with brain stem, with preservation of the supporting artery and protecting of surrounding nervous structures.

Vertebrobazilar aneurysms make about 15% of all intracranial aneurysms, from which one fifth belongs to aneurysms a. posterior inf. cerebelli (PICA). Majority of PICA aneurysms is located in the place of separating from a. vertebralis. Aneurysms of distal part of artery posterior inferior cerebelaris are very rare, according to literature they make 0, 5 to 3% of all aneurysms.

REVIEW OF CASE

The patient was 70 years ora many came to neurologist because of the sudden headache, pain in the neck and a feeling of stiffness followed by throwing up in stream. On the occasion of medical check up attack of spontaneous subarahnoidal hemorrhagia was suspected. Clinical gradus according to H&H III, initial CT of endocranium showed existence of smaller intracerebellar hematem next to lateral wall of IV ventricle and trace of blood in the IV ventricle without signs of acute hydrocephalus (fig.1). He was treated with medicines according to protocol for hamoragies including stabilization of hypertension and consultation with cardiologist. The seventh day after the hemoragia angio CT of endocranium was done and it showed existence of aneurysm on the distal part of PICA, more specifically in the telovelotonzilar segment on the
right (fig. 2). After that diagnostics supplemented with standard digital subtrasectional angiography which confirmed nature and localization of lesion and pointed to incidental finding of small AVM on the same side in the parenhym of cerebellar hemisphere which probably with her hemodynamic influence brought formation of aneurysm, and herself wasn’t the reason of hemorrhage (fig. 3). Afterwards for the purpose of topographic localization and planning of surgical approach MRI of brain was also done and it clearly showed relation of aneurysm with vermis and IV cerebral ventricle. Practically, MRI visualization showed that aneurysm is hanging on the right lateral wall of IV cerebral ventricle (fig.4). In the postponed procedure, and in conformity with strategy of surgical timing of aneurysms in the posterior circulation, patient was operated three weeks after the attack of hemorrhage. Operation was realized in the sitting position. The approach was middle-lined subokcipital with unilateral extension. During the preparation of supporting artery and aneurysm we approached through fissure between vermis and cerebellar hemisphere. After identification of clearly defined neck and confirmation of absence of perforator, clips were placed in the vicinity. During the operation golden standard in operations of aneurysms was achieved, therefore aneurysm was directly excluded from circulation like prevention from rehemorrhagia including preserved circulation of supporting artery. Postoperative course passed regularly, patient was released eight days after the operation without signs of systemic and local infection. In the neurological finding light truncal ataxia was dominating. Control CT excluded development of hydrocephalus (fig. 5). Karnofsky index on the occasion of dismissal was 90.

DISCUSSION

Because of the higher number of patients with hypertension, especially in cases of aged persons, the most often form of hemorrhage in projection of posterior fossa are bleeding of paravermicular and nc. dentatus because of amyloidal degeneration. On the other hand subarahnoidal hemorrhage of aneurysm etiology is typical in basal cistern in the cases of middle-aged and young persons too, without a presence of hypertension and diabetes as often associated diseases, more often in cases of women 2,3, C. The most often localization of 17 aneurysm is connection of vertebral artery and PICA herself. In spite of the fact that typical vertebral PICA aneurysm is in close relation with hypoglossal nerves and nerves of foramen jugulare, often dived in medulla, specific signs are rare and the highest number of these patients come with picture of spontaneous subarahnoidal hemorrhage. Long term rigidity of neck is characteristic, because of the often presence of blood in the cistern magna 4,5. Focal neurological deficit is also often in the cases of giant aneurysms of this location which didn’t present themselves with hemorrhage. Majority of epidemiologic series emphasizes predomination of women in relation 3:1. According to relatively long vascular flow of a. PICA she is divided into several segments. These are: anterior medullar, lateral medullar, tonzilomedullar, telovelotonsilar and cortical. Considering the way of spreading, she vascularizes caudal medulla oblongata, cerebellar tonsiles, lower portion of cerebellar hemisphere and vermis and plexus horoideus of IV ventricle.

Critical surgical points on the occasion of preparation of aneurysms of this flow are n. IX, n. X and n. XII, whose little traction brings to difficult problems of disfagy, disartry type and potential life endangering aspiration.

Regarding presented anatomical clinical correlations it is logical that the most of real secular aneurysms are on the initial point of a. PICA from stem of vertebral artery. Going distal way aneurysms are rarer. According to our experience and in conformity with published data distal circulation is more often place for appearance of fuziform and bizarre spreadings which don’t response to real aneurysms.
Distal part of a. PICA, as initial point of aneurysm, is more characteristic in pediatrics population, especially in the case of existence of smaller AVM in that region which causes appearance of high flowing and in that way brings to creating of aneurysm.

**CONCLUSION**

Disregarding low incidence of existence of aneurysms of distal circulation (under 1% of all in the back flow) high level of suspicion should be present and angio CT should be done as screening method, if CT of endocranium shows hemorrhage which according to localization responses to possible aneurysm. If existence of aneurysm is proved then strategy of treatment means operation with complete radiology evaluation which was previously done and preparation of patient. Besides of review of extremely rare localizations of sacular aneurysm of back flow this would be in the same time algorithm for treatment of hemorrhage in the back skull hole of grown up patients, because the lesion is definitely surgically curable and surgery is cure of choice.

**SUMMARY**

**ANEURIZMA NA DISTALNOM SEGMENTU DONJE ZADNJE CEREBELARNE ARTERIJE: PRIKAZ SLUČAJA**

Vertebrobasilarne aneurizme čine oko 15% svih intrakranijalnih aneurizmi, od čega jedna petina pripada aneurizmama a. posterior inf. cerebelli (a.PICA).Većina aneurizmi PICA-e lokalizovano je na mestu odvajanja od a.vertebralis. Aneurizme distalnog dela arterije posterior inferior cerebelaris su veoma retke, prema literaturi od 0,5 do 3% svih.

Muškarac star 70 godina javio se neurologu zbog naglo nastale glavobolje, bola u vratu i osećaja ukočenosti, praćenog povraćanjem u mlazu. Prilikom pregleda sumnja na atak spontane subarahnoidalne hemoragije. Klinički gradus po H&H III. Inicijani CT endokranijuma pokazao postojanje manjeg intracerebelarnog hematoma uz lateralni zid IV komore i trag krvi u samoj komori bez znakova akutnog hirocefalusa. Sedmog dana nakon hemoragije uradjen angio CT endokranijuma koji je ukazao na postojanje aneurizme na distalnom delu a.PICA-e, tačnije telovelontzilarnom segmentu desno. Nakon toga dijagnostika dopunjena standardnom digitalnom supraksonom angiografijom koja je potvrdila prirodu i lokali-
zaciju lezije. U odloženom postupku a u skladu sa
strategijom hirurškog tajminga aneurizmi u zadnjem slivu
bolesnik je operisan nakon tri nedelje od ataka hemoragije
Bez obzira na nisku incidencu prisustva aneurizmi dis-
talne cirkulacije (ispod 1% svih u zadnjem slivu) treba
imati visok stepen sumnje i uraditi angio CT kao skrining
metodu ukoliko CT endokranijuma pokaže hemoragiju
koja po lokalizaciji odgovara eventualnoj aneurizmi

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