Case Report

Intracranial aneurysms – A study of 15 cases

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Abstract

Intracranial aneurysms are relatively common, occurring in 1 – 14% of population. Most of the intracranial aneurysms are asymptomatic. Unruptured aneurysms may cause symptoms from mass effect. Rupture of the intracranial aneurysm can lead to parenchymal hemorrhage or subarachnoid hemorrhage (SAH). Ruptured aneurysm is the most common cause of spontaneous SAH. 85% of intracranial aneurysms occur in circle of Willis, of which anterior circulation is the most common site for aneurysms. Multiple aneurysms are seen in 15 – 20% of the patients.

Key Words: Intracranial aneurysms, berry aneurysms, circle of Willis.

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INTRODUCTION

Aneurysms are due to focal degeneration of arterial wall resulting in its dilatation. Intracranial aneurysms are relatively common, occurring in 1 – 14% of population. Most of the intracranial aneurysms are asymptomatic and may be found incidentally on imaging. Symptomatic aneurysms mostly present with SAH or ICH due to its rupture, may cause mass effect and cranial nerve palsy, infarct, seizures. Ruptured aneurysm is the most common cause of spontaneous SAH. 90 to 95% of aneurysms are found in carotid circulation, 5- 15% in vertebro basilar circulation, out of which 85% occur in circle of Willis. Multiple aneurysms are seen in 15 – 20% of the patients. Aneurysms less than 1 cm in diameter are called small aneurysms, 1.0 – 2.5cm in diameter are called large aneurysms and that exceeds 2.5cm are called giant aneurysms.

MATERIALS AND METHODS

Over a period of 1 year (September 2016 to September 2017), 15 cases of intracranial aneurysms are studied. 12 out of 15 cases presented with findings of ruptured aneurysms such as SAH, intraparenchymal hematoma etc., other 3 were incidentally detected.

- CT angiography was performed by SIEMENS 6 slice SOMATOM CT machine.
- Out of 15 cases, 8 are male and 7 are female.
- Patients were in the age range of 23 to 80 yrs.
- Informed written consent was taken from all the cases.

OBSERVATIONS AND RESULTS

Table 1: Gender distribution

Gender	Male	Female
No. of Cases	8	7

Table 2: Age distribution

Age	No. of Cases	Percentage
21-30 yrs	1	6.66%
31-40 yrs	2	13.33%
41-50 yrs	2	13.33%
51-60 yrs	6	40.00%
61-70 yrs	1	6.66%
71-80 yrs	3	20.00%

Table 3: Location of aneurysms

Location	Number	Percentage
ACom	8	42.10%
MCA	5	26.31%
Vertebral	2	10.52%
PCA	1	5.26%
ICA	1	5.26%
ACA	1	5.26%
Posterior choroidal Ar	1	5.26%

Table 4: Presentation of ruptured aneurysms

Presentation	No. of Cases	Percentage
SAH	5	41.66%
SAH + Intraparenchymal hematoma	3	25.00%
SAH + Intraventricular hemorrhage	3	25.00%
Intraparenchymal hematoma	1	8.33%

Out of 8 patients with ACom aneurysm, 7 patients had either hypoplastic (2 patients) or agenetic (5 patients) A1 segment of either of ACAs. Two patients had two aneurysms in two different vessels. One patient had giant aneurysm from cavernous portion of right ICA and saccular aneurysm from left MCA at M1 – M2 junction. Other patient had aneurysms at right PCA and A2 segment of right ACA. One patient had three saccular aneurysms one each from M1 segment of right MCA, M1 and M2 segments of left MCA. Out of 19 aneurysms one is giant (26 x 22mm from ICA), three are large aneurysms and rest all are small aneurysms.

Cases and Image Gallery:

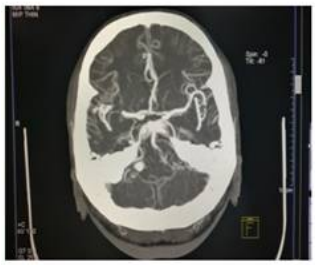

Figure 1

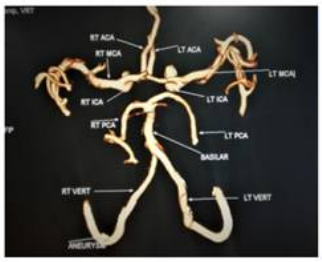

Figure 2

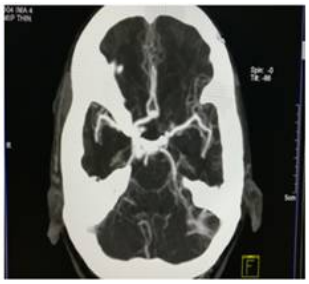

Figure 3

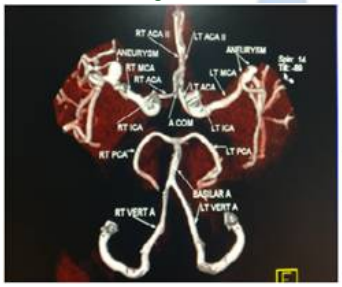

Figure 4

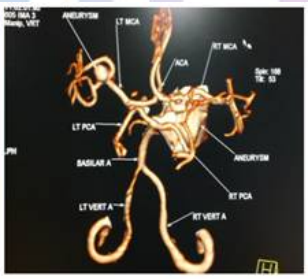

Figure 5

Figure 6

Figure 7

Figure 8

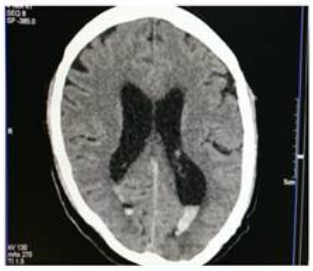

Figure 9

Legend

Figure 1 and 2: Thin MIP (1) and VRT(2) images showing small right vertebral artery aneurysm(3 X 2mm); **Figure 3:** Thin MIP image showing saccular ACom aneurysm (7 X 5mm) with agenetic A1 segment of left ACA; **Figure 4:** VRT image showing three saccular aneurysms one each from M1 segment of right MCA, M1 andM2 segments of left MCA; **Figure 5 and 6:** Thin MIP(5) and VRT(6) images showing giant aneurysm (2.6 X 2.2 X 2.1cm) from cavernous portion of right ICA and saccular aneurysm (10 X 8mm) from left MCA at M1-M2 junction; **Figure 7:** Thin MIP image showing fusiform aneurysm (6.5 X 5.1mm) of right PCA at its PCom junction and small saccular aneurysm (5 X 4mm) at A2 segment of right ACA; **Figure 8:** Saccular aneurysm of posterior choroidal artery in temporal horn of left lateral ventricle (8 X 6mm); **Figure 9:** Patchy SAH involving bilateral cerebral hemispheres with intraventricular extension resulting into mild obstructive hydrocephalus.

SUMMARY AND CONCLUSIONS

There is slight male predominance (53.33%) in intracranial aneurysms in our study. Most of the intracranial aneurysms are present in 51 to 60yrs age group (40%). Multiple aneurysms are present in 3 out of 15 cases (20%)(2 in two cases and 3 in one case). 10 out of 19 aneurysms are arising from circle of Willis (52.63%). Most common location is ACom artery (42.1%). Out of 8 patients with ACom aneurysm, 7 patients had either hypoplastic (2 cases) or agenetic (5 cases) A1 segment of either of ACAs. Hence, agenesis or hypoplasia of A1 segment of ACA may predispose for ACom aneurysm.

ABBREVIATIONS

SAH: Subarachnoid haemorrhage; ICH: Intracerebral hematoma; IVH: Intraventricular hematoma; ACom: Anterior communicating arter; PCom: Posterior communicating artery; ACA: Anterior cerebral artery; ICA: Internal carotid artery; PCA: Posterior cerebral artery; MCA: Middle cerebral artery.

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