

Imaging diagnosis

Case 401

3. Pancreas arterio-venous malformation

【Progress】

As pancreatic AVM are not yet to be responsible for his symptoms. He is under watchful observation at present.

【Discussion】

Pancreas arterio-venous malformation (AVM) is a rare disease. Only one case with pancreatic AVM was encountered among approximately ten thousand cases taken abdomen CT for ten years in our hospital. Pancreatic AVM is asymptomatic in a small-sized stage. As it enlarges followed by portal hypertension, various symptoms appear such as hematemesis, digestive organ hemorrhage, epigastric discomfort, caused by esophageal varices rupture and encephalopathy, indicative of life-threatening disease (1). There are three managements for pancreatic AVM, surgical resection, transcatheter arterial embolization and radiation therapy (2-4).

When pancreatic AVM enlarges, it becomes gradually difficult to treat with surgical resection and arterial embolization. It is reported that surgical resection cannot be managed for difficulty of hemostasis, inducing to the situation of life-threatening (1-4). Further, embolization also is unable to occlude pancreatic AVM, as it enlarges that it gets blood supply from various inlet arteries such as dorsal pancreatic artery, anterior superior or posterior inferior pancreatic arcade, right and left gastric artery and left hepatic artery (1). Even if each artery is occluded by transcatheter arterial embolization with micro coils and gelatin sponge particles, pancreatic AVM always recurs instantly. Pancreatic AVM nidus occlusion is necessary for radical treatment. Embolization with n-butyl cyanoacrylate (NBCA) might be useful for nidus occlusion. However, the use of NBCA might be accompanied by the risk of ischemia of visceral organs and distant pulmonary artery occlusion (2-4).

Intraoperative radiation treatment using β beam was once attempted for non-surgically unmanageable pancreatic cancer. Although intraoperative radiation treatment could not lead to radical treatment or longer survival for pancreatic cancer, it assured its safety preserve of pancreas parenchyma after radiation treatment. In the early 21 century, there is a report that intraoperative radiation treatment with 30Gy using β beam plus external radiation treatment with 20Gy was given for large pancreas AVM, inducing marked shrinkage of large pancreas AVM 8 months later and almost complete disappearance 62 months later (1).

Now, for small to medium-sized brain AVM, γ knife with 12Gy or radiosurgery with 22 Gy was reported to be given for small- or medium-sized AVM, inducing disappearance incidence of 70% or 80-90%, respectively (5, 6).

In our case, with pancreas AVM of 3 cm in size might be applicable for γ knife 12Gy or radiosurgery, instead of intraoperative radiation treatment.

【Summary】

We presented a sixty-six-year-old male for epigastric pain and suspicious hematemesis. Contrast-enhanced CT depicted arterio-venous malformation at pancreas head. It is borne in mind that there are three managements for pancreas AVM, surgical resection, transcatheter arterial embolization and radiotherapy. For large pancreas AVM, although intraoperative radiation treatment of 30Gy using β beam and 20Gy external beam radiation are effective for complete response, γ knife with 12Gy or radiosurgery with 22Gy might be useful for medium- or small-sized AVM.

【References】

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