Proper management

Case 236

3. Lipiodol-ethanol emulsion infusion

【Treatment procedure】

Contrast medium of 2mL was injected to the lesion. After confirming the volume of contrast medium was stagnant to the lesion, of the mixture of lipiodol 2mL and ethanol 5mL, 1.4 mL was injected to the lesion. One week later, he mentioned the hardness of the lesion became softened. He was scheduled to receive the same management one month later.

【Discussion】

There are three types of angioma or vessel malformation: arteriovenous malformation, venous malformation and capillary malformation. Imaging diagnosis is crucial before treatment. Contrast-enhanced CT and/or MRI is useful for their differentiation.

Arteriovenous malformation (AVM) is a vessel disease that artery shunts to vein not via capillary but via nidus which is an abnormally dilatated vessel lumen. It causes swollen to the existing tissue by itself and elevation of venous pressure, hemorrhage from the dilated vessel, ischemia such as ulcer & necrosis, deformity, functional disorder and elevation of central venous pressure leading cardiac failure. Treatment rationale is destruction of nidus. For this, surgical resection, interventional radiology (sclerotherapy and embolization), and radiotherapy are listed. For preserve of function, nonsurgical treatment is becoming prevailed. The choice of treatment is dependent on the organ emerging AVM. For AVM at the extremities, foot, hand and fingers, direct injection of ethanol-lipiodol emulsion to nidus is recommended under interruption of feeding artery and draining vein using a manchette (cuff) or hand pressure (1). For AVM at liver or pancreas, arterial embolization is recommended using NBCA-lipiodol or NBCA-lipiodol-ethanol because of difficulty of the interruption of both feeding artery and draining vein. When IVR is uncontrollable, radiation therapy is reported to be effective for pancreatic AVM (2). Radiation therapy is also commonly used for brain AVM. For pulmonary AVM, micro-coil embolization is commonly performed because of single or pleural feeding artery.

Venous malformation is a vascular disease that includes cavernous or saccular dilated vessel. It is originally called subcutaneous cavernous hemangioma or intramuscular angioma. T2 suppression MRI depict a lesion with hyper signal intensity and CT depict phlebolith in the vessel. Contrast CT or MRI shows slow and stagnant enhance effect. The basic treatment of venous malformation is direct injection sclerotherapy using emulsion of lipiodol-ethanol (1). Because of stagnant blood flow, it is not necessary to interrupt blood flow. It requires much volume of lipiodol-ethanol emulsion. In our case, stagnant blood flow was confirmed by injection of contrast medium of 2mL. Thereafter, ethanol-lipiodol emulsion was created using 2mL lipiodol and 5mL ethanol. Of the emulsion of 7ml, 1.4 mL was used for sclerotherapy. In case of obtaining insufficient shrinkage, repeated injection of the emulsion was scheduled. It might be crucial to

repeat injection a bit by a bit to avoid complication because tongue is sensitive for pain and hemorrhage.

Capillary malformation is a vessel disease that includes fine network abnormal vessel in the existing tissue. The common treatment is surgical resection or Laser irradiation. Laser irradiation is not applicable for thick and mass-like lesion. Direct sclerotherapy using a very small quantity of ethanol is applicable for capillary malformation at face and/or mouth lip (1). The goal of this treatment is to decrease of massive capillary malformation by repeated injection with a small volume quantity of ethanol.

【Summary】

We presented a seventy four year-old male for swollen tongue. Fat suppression T2WI demonstrated a lesion at the tongue with high signal intensity and contrast medium injection showed stagnant of blood flow , implying diagnosis of venous malformation. Direct injection of lipiodol-ethanol emulsion was stagnant inside the lesion. Although follow-up study is necessary, he felt the massive hardness of the lesion is being softened. It is borne in mind that there are three types of vessel malformation: arteriovenous malformation, venous malformation and capillary malformation. Direct sclerotherapy using emulsion of ethanol-lipiodol is useful for arteriovenous malformation in case of possible interruption of both feeding artery and drainage vein, and further venous malformation because of stagnant blood flow. For capillary malformation, repeated direct sclerotherapy of ethanol in a small volume quantity is useful for its shrinkage.

【References】

1. Kawai N, Sato M. Wisdom of IVR 2nd edition 2018 Kinpodo 15-172, vessel malformation
2. Sato M, et al. Radiation therapy for a massive arteriovenous malformation of the pancreas. AJR 2003; 181:1627-1628.

back

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