Intracerebral hyperattenuation following mechanical thrombectomy—distinguishing haemorrhage from contrast staining on CT

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Abstract

Background: Following mechanical recanalization of an acute intracranial vessel occlusion, intracerebral hyperattenuations (ICHAs) are frequently found on CT. They represent either blood or, more commonly, enhancement of contrast agent. Contrast staining of brain parenchyma is an incompletely understood imaging finding, with controversial pathophysiology and prognosis. Intracerebral haemorrhage (ICHs) has a high mortality rate, leads to a significant decrease in clinical status and requires a prompt diagnosis.

Objectives: 1. To understand the causes of ICHAs after endovascular therapy and their clinical importance; 2. To illustrate helpful CT features in the distinction between ICH and contrast staining; 3. To briefly discuss the current theorized mechanisms involved in intraparenchymal contrast staining.

Methods: We reviewed the literature in order to determine the main clinical features and imaging findings of ICHAs after intra-arterial treatment. We then searched our database in order to find, review and depict relevant clinical cases.

Results/Conclusion: With increasing use of endovascular reperfusion, recognition of intraparenchymal contrast staining from true haemorrhagic transformation can pose a challenging problem. Definite diagnosis often cannot be made at an early stage. Follow-up studies may be necessary, proving gradual resolution in case of contrast material staining, or an increased / stable aspect, in case of haemorrhage. Accurate interpretation is clinically significant for therapy adjustment.

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