

Intimal hyperplasia

Intimal hyperplasia is a universal reaction of the vascular wall to its damage. When the endothelium is injured, there is a physiological local reaction, release of inflammatory mediators, aggregation of platelets, influx of fibrin and leukocytes, which support the migration of smooth muscle cells from **the media to the intima with the help of** growth factors. Muscle cells here **proliferate** and create an extracellular matrix, thus completing the healing process. The result is the formation of **neo-intima** in the area of injury. The problem, however, is that this **excessive healing process** leads to local **thickening** of the intima that extends into the **lumen** of the vessel and causes **stenosis**.

Intimal hyperplasia is the "nightmare" of interventional radiologists and vascular surgeons, as it is responsible for the formation of **stenoses and restenoses**, after endovascular and surgical treatment. Intimal proliferation is additionally enhanced and accelerated **by the presence of foreign materials** (in-stent restenosis). It often arises not only after **interventional and surgical interventions**, but also at the site of a **long-term inserted venous catheter, turbulent flow**, at the sites of **vascular anastomoses** and grafts. Restenosis can appear **in just a few months**.

We can influence the reduction of the risk of intimal hyperplasia by being **careful during procedures**, by trying to minimize **damage** to the endothelium in and around the treated area, and **by properly indicated** use of stents and vascular prostheses.

Stenoses caused by intimal hyperplasia are very **difficult to treat**. **When they dilate**, **further tissue damage** occurs and thus new proliferation. The use of stents will help maintain the patency of the vessel, but itself **promotes further hyperplasia**. The tissue grows through the slits of the stents, in the case of coated stents, gradual obliteration occurs at their ends. **Different treatment strategies** for these restenoses are being investigated, e.g. drug-eluting balloons (**DEB**), drug-eluting stents (**DES**), intravascular brachytherapy, systemic use of LMWH or warfarin.

Pseudointimal hyperplasia

In addition to intimal hyperplasia, there is the term **pseudointimal hyperplasia**, which refers to a similar event, which does not take place in the vessel wall, but in **the intraparenchymal part** of the liver after TIPS. The tissue that covers the stent in the intraparenchymal part of the liver is called **pseudointima** (fibrous layer continuously covered by endothelium). If its thickness exceeds 1000 µm, it is described as **pseudointimal hyperplasia**, which is involved in late **TIPS dysfunction**.

Links

Related Articles

- Interventional radiology
- Vessel

Resources

- D'SOUZA, Donna, et al. *Intimal hyperplasia* [online]. Radiopaedia, [cit. 2014-03-27]. <<https://radiopaedia.org/articles/intimal-hyperplasia>>.
- JIRKOVSKÝ, Václav, et al. *Dysfunkce transjugulární intrahepatální portosystémové spojky (TIPS) a její řešení : Přehledný referát* [online]. Vnitřní lékařství, ©2007. [cit. 2014-03-27]. <https://www.prolekare.cz/pdf?id=vl_07_02_10.pdf>.
- CURA, Marco, et al. *Vascular and Interventional Radiology Review : Causes of TIPS Dysfunction* [online]. American Roentgen Ray Society, ©2008. [cit. 2014-03-27]. <<http://www.ajronline.org/action/cookieAbsent>>.

