## Percutaneous coronary intervention in highly calcified stenoses: how do we crack it open?

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**Introduction**: Highly calcified coronary lesions represent up to 30% of all coronary stenoses, and bring greater risk of complications and recurrent events. Non-compliant, cutting/scoring and super-high pressure balloons, together with debulking devices (rotablation and intravascular lithotripsy) are essential in calcium management.<sup>1</sup>

**Patients and Methods**: We aimed to investigate changes in patterns of calcium management in a tertiary institution cath-lab from 2018 to 2022. We compared yearly penetration of calcium debulking techniques in one center from 2018 to 2022 among all percutaneous coronary intervention (PCI) in patients with chronic and acute coronary syndromes.

**Results**: Among all patients treated in 2018 and 2019, rotablation was used in 1.7% and 1.5% of all PCI cases, whereas super-high pressure balloons were used in 1.3% and 1.1% of cases for debulking. Non-compliant balloons were used for lesion preparation in 18% of all PCI. In 2021 and 2022, rotablation was used for debulking in only 0.4% of cases, whereas super-high pressure balloons were used in 1.2% of cases, often in combination with rotablation. Also, in 2021 and 2022 intravascular lithotripsy (IVL) was used in 1.4% of all PCI cases for debulking, and non-compliant balloons were used for lesion preparation in 32% of cases. Among all PCI in 2021 and 2022, there was 1 case of failed stent delivery in a tortuous calcified vessel, and 1 case of inadequate stent expansion after IVL that was successfully expanded with a super-high pressure balloon.

**Conclusion**: In cases of highly calcified coronary lesions, IVL has been becoming a standard in crossable lesions, whereas rotablation has been used occasionally - almost exclusively in non-crossable lesions in combination with super-high pressure balloons after successful crossing. Also, routine use of non-compliant ballons for lesion preparation has increased markedly, whereas scoring balloons were not used routinely in calcified lesions.

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1. Burke L, Graham JJ. Percutaneous management of calcified coronary arteries - review of atherectomy and lithotripsy devices and why it is important. Curr Opin Cardiol. 2021 Sep 1;36(5):630-636. https://doi.org/10.1097/HC0.00000000000871

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