

Preventing secondary dislocation of peripheral nerve block catheters

Internal fixation mechanisms

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INTRO

- Peripheral nerve block catheters have unacceptable high failure rates preventing clinical adoption.
- Secondary dislocation is a key problem and needs to be addressed for future nerve block catheter designs.

ANALYSIS

- Secondary dislocation is caused by
 - Lack of internal fixation near target
 - External fixation on skin
 - Forces acting on the catheter on the path from insertion site (skin) to target near nerve
 - Tissue movement, including muscle contraction, tissue swelling and other factors
- Different anatomic regions have specific characteristics of forces and dislocation distances

POTENTIAL SOLUTIONS

- Internal fixation mechanism
 - Mechanical
 - Chemical
 - Combination
 - Sufficient anchoring force to prevent secondary dislocation
 - Safe

CONCLUSION

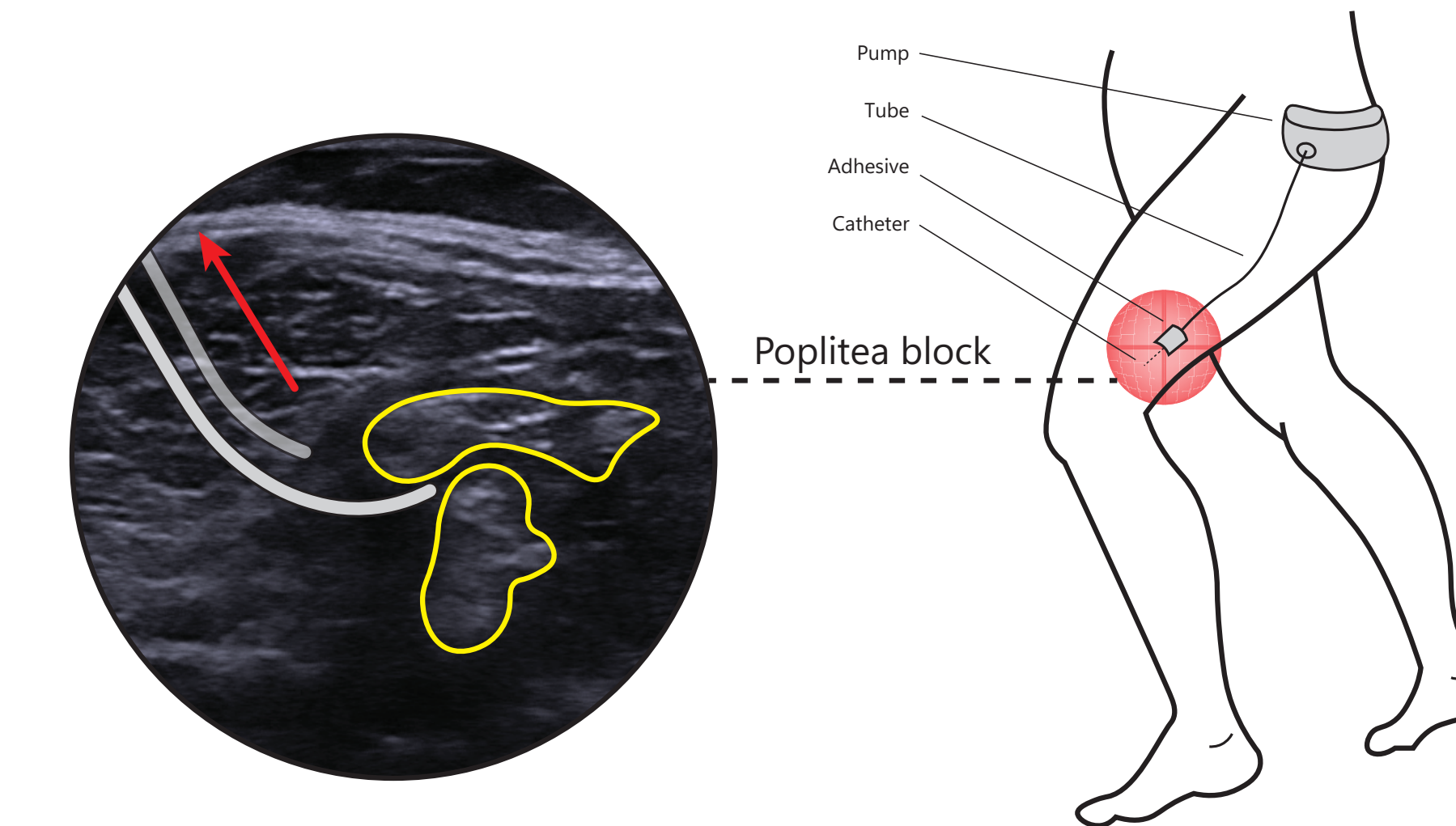
- Peripheral nerve block catheters need to be redesigned to solve the problem of secondary dislocation

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Internal fixation



Active phase



Before leg movement



After leg movement