Early postoperative detection of tissue necrosis in amputation stumps with indocyanine green fluorescence angiography.

OBJECTIVE: Amputations of the lower extremity due to irreversible ischemic tissue loss are performed as distally as possible. Therefore, oftentimes wound-healing disorders develop, requiring additional surgical treatment.

METHODS: The amputations stumps of 10 patients with irreversible ischemic tissue loss due to arteriosclerosis were investigated within 72 hours postoperatively with indocyanine green (ICG) fluorescence.

RESULTS: For 6 of the investigated stumps, no perfusion deficit could be seen through fluorescence angiography. All stumps displayed primary healing. In the fluorescence angiography of 3 amputations, stump perfusions deficits predicted later tissue necrosis and had to be amputated again in a second operation. One amputation wound showed a small ICG perfusion deficit that represented a blood clot.

CONCLUSION: Indocyanine green fluorescence angiography allows a perfusion analysis of amputation stumps and therefore a prediction of the expected tissue necrosis. This tool may allow reliable prediction of amputation level.

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