Bringing Life to Dead Toes or, Revascularization of Critically Ischemic Toes via Peri-Digital Infiltration of Amniotic Fluid – a case report

Critical limb ischemia is a limb and life threatening event. It is multifactorial, even in any single case. It is one of the most painful conditions that we see. It is usually the pain that brings the patient in to see us. Unfortunately by the time patients’ present for treatment the affected part is, or is nearly, dead and the only treatment left is surgical or auto-amputation. The pain can be so severe that patients look forward to the loss of an integral portion of their body. Revascularization of the micro circulation should resolve many of these complaints but is not a surgically feasible alternative. Amniotic fluid is rich in a multitude of growth factors used to nurture the growing fetus and support it’s growth. The ability for amniotic fluid to encourage vascular neogenesis in vitro is known. It’s use in vivo for this purpose is yet common but should be.

This poster presents a case that demonstrates the ability of amniotic fluid to foster restoration of the vascular network in previously dying tissues.

Presented here are 2 cases demonstrating the ability of amniotic fluid to induce vascular neogenesis and restore life to previously near-dead toes. Both cases appear to have been due to an acute ischemic event at the digital artery level.

Relief from the ischemic pain occurred within days after the peridigital infiltration of amniotic fluid, indicating vascular regrowth. Healing of the digits occurred thereafter.

Amniotic fluid is a potent source of growth factors [documented] and hopefully fetal stem cells [undocumented].

PROCEDURE:
- The amniotic fluid used in these cases [FloGraft©, Applied Biologics] is provided deep frozen and needs to be thawed to body temperature first.
- While the amnion is defrosting an anesthetic cream is applied under occlusion [Emla© under Tegaderm©] to the perilesional area.
- The defrosted amniotic fluid is then diluted with either sterile saline or lidocaine. Usually a 1:1.5 or 1:1 dilution [amnion:dilutant] is used. I have used other dilutions in other cases [1:2 in such cases as necrotic heel decubiti].
- The anesthetic cream is then wiped off and the skin is aseptically prepped.
- The diluted amniotic fluid is then infiltrated subcutaneously 1 -2 cm from the base of the digit in a circumferential manner.
- Dress as appropriate.

Patient was in severe pain from the first day he came in. He made numerous trips to the Patient Advocate stating that neither Vascular nor Podiatry were doing anything for his pain. Both services were, in fact, waiting for the limb to demarcate and indicate the eventual amputation level. Patient was placed on MSContin for his pain which provided only partial relief.

Pain resolved completely within 3 days from first infiltration. 2nd infiltration of amniotic fluid was 2 weeks later, Standard wound care was followed at home after applications of amniotic fluid.

What was expected to eventually become a TMA or even a BKA was instead healed with preservation of all the toes. Amniotic fluid infiltration was responsible for the small vessel regrowth to the toe which allowed it to heal.

Materials and Bibliography

FloGraft [frozen amniotic fluid] from Applied Biologics

In Vitro Angiogenesis on the Human Amnion Membrane: Requirement for Basic Fibroblast Growth Factor-induced Pilot-studies

Neovascularization of the Amniotic Membrane as a Biocompatible Vascular Scaffold

Amniotic Membrane: A Novel Material for Regeneration and Repair
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