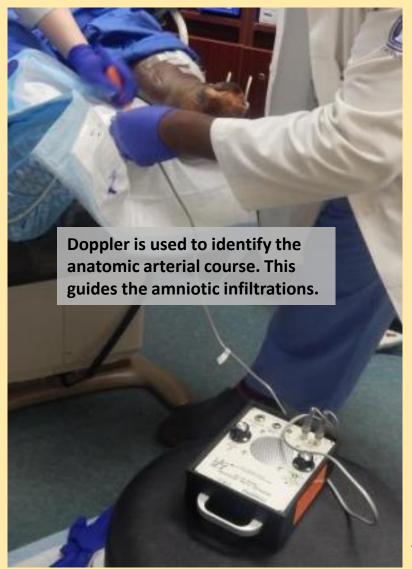


## Infiltration of Amniotic Fluid Promotes Non-Surgical Revascularization of the Ischemic Foot

Shengsheng Guan, DPM\*\*\*; Isaac Neequaye, DPM\*; H. David Gottlieb, DPM, DABPM, FAPWCA\*\*

Amniotic fluid has been long used in wound healing since early 1900s. And in recent years, more and more physicians have utilized its ability to re-vascularizing tissues in non-surgical patient with critical ischemic disease.

Presented here are 5 examples of how amniotic fluid infiltration is particularly important in re-vascularizing diabetic patients with ischemic foot disease.



## **PATIENTS:**

**Pt 1** – Ischemic pain was relieved significantly after 2 amniotic fluid infiltrations. Improvement in skin tone also noted.

Pt 2 – Ischemic pain relieved after first infiltration, wound healed after 2 amniotic infiltrations at base of toe. Has remained healed and pain free for 2 years.

Pt 3 – The size of the wound didn't change after 3 amniotic infiltrations but pain was relieved.

**Pt 4** – Due to revascularization effect of amniotic fluid injection along with other wound products, wound was closed and foot saved in 6 months. Patient is not a surgical candidate.

**Pt 5** – Ischemic pain and dry gangrene at presentation.
Granular tissues was formed after 2<sup>nd</sup> infiltration, ischemic pain decreased by 30% by the end of 2<sup>nd</sup> infiltration.







## Conclusion

Amniotic fluid infiltrated alongside the occluded major arteries to the foot induces new vessel formation to occur. These new vessels revascularize the foot – relieving ischemic pain and allowing wounds and necrotic tissue to heal.

This is a novel non-surgical technique that is effective for some patients where surgical approaches are not appropriate.

## References

Ping Zhang, Jason Baxter, Kateki Vinod, Thomas N. Tulenko, and Paul J. Di Muzio *Endothelial Differentiation of Amniotic Fluid—Derived Stem Cells: Synergism of Biochemical and Shear Force Stimuli* Stem Cells Dev. 2009 Nov; 18(9): 1299–1308. Kim J, Lee Y, Kim H, Hwang KJ, Kwon HC, Kim SK, Cho DJ, Kang SG, You J. Human amniotic fluid-derived stem cells have characteristics of multipotent stem cells. Cell Prolif. (2007);40:75–90.

Schmidt D, Achermann J, Odermatt B, Breymann C, Mol A, Genoni M, Zund G, Hoerstrup SP. *Prenatally fabricated autologous human living heart valves based on amniotic fluid-derived progenitor cells as single cell source*. Circulation(2007);116:I64–I70. Perin L, Sedrakyan S, Da Sacco S, De Filippo R. *Characterization of human amniotic fluid stem cells and their pluripotential capability*. Methods Cell Biol. (2008);86:85–99

None of the authors have any financial interest in any product used during the course of treatment.

\*\*H. David Gottlieb, DPM DABPM, FAPWCA

Wound Care Specialist VAMHCS \*Isaac Neequaye, DPM PGY3 VAMHCS

\*\*\*ShengSheng Guan, DPM Clinical Technician VAMHCS