**Objectives**

To effectively treat hand contractures with an incisionless regenerative alternative, we developed the Percutaneous Aponeurotomy & Lipo-Filling (PALF) procedure. Percutaneous aponeurotomy selectively mesh-expands the taught contracted tissues while sparing the looser neurovascular structures. We then seed the meshed interspaces with regenerative fat grafts.

**Methods**

We performed 186 percutaneous aponeurotomy & lipo-filling (PALF) procedures (152 Dupuytren, 34 scar contractures) on 140 patients (38 bilateral & 8 twice). The procedure consists of placing the contractures under strong tension, and with multiple percutaneous 1.25-mm needle pricks, generating a pattern of staggered slits that mesh-expands the contracture like a meshed skin graft to create a recipient scaffold for the interposed fat grafts. We then diffusely inject though multiple needle puncture sites a gravity-sedimented, syringe-harvested, lipoaspirate as tiny droplets in multiple planes (10 ml/digital ray). The hand is then immobilized in extension for 5-7 days before returning to gentle activities as tolerated.

**Results**

No incisions and no sutures were required and patients had a quick recovery with 90% returning to gentle hand use within 8 days. PALF treatment of the Dupuytren contractures yielded 110% and 57% correction at MPJ and PIPJ at 12-months; a result comparable to open fasciectomy and flap. The area treated with PALF resulted in a 30% tissue gain, allowing us to successfully release scar contractures that would have otherwise required a flap transfer without the risks and morbidity of flap surgery. There was no nerve injury. Complications were infrequent and minimal.

**Conclusions**

Needle pricks in the 1-mm range leave no scar; the sum of these staggered slits can expand the overall meshed area by 20-30%. Fat grafting the tiny interspaces fills the gap with near normal tissue, thus regenerating the tissue deficiency without scar or donor defect. Though limited, our experience shows that PALF is an incisionless, regenerative alternative to conventional flap transfers.

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**Dupuytren**

- ![Image](image1.png)

**Scar Contracture + Tendon Adhesions**

- ![Image](image2.png)