Fatgrafting in Dupuytren disease

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INTRODUCTION
Several pathogenetic hypothesis were described but no one seems to be singularly responsible for fascia proliferation in Dupuytren's disease. The surgical approach aim to treat the macroscopic manifestation of finger retraction, often with aggressive approach needed in the most advanced disease stage. It became necessary to investigate the cellular Dupuytren develop to find out new therapeutic approach to permit a more sparing surgery and to treat all severe cases. In fact some clinical studies assess as, in addition to fascia, palmar skin and fat-derived cells may be a potential source of cells causing the Dupuytren disease. Based on this observation, the introduction of the fat graft palmar replacement by lipofilling technique joint to traditional aponevrectomy have shown promising long term good result.

METHODS
A retrospective study was performed on all our patient treated for Dupuytren recurrence by aponevrectomy joint to a fat graft from abdominal region. Thirty patients, with a medium follow up of five years, were treated in our Centre for Dupuytren disease. An aponevrectomy was performed in all cases according to traditional surgical approach with complete removal of affected fascia. At the end of the skin closure all the surgical site and the unaffected neighboring rays were filled by fat graft harvested from the abdomen (mean 12cc of fat graft for each patient). Primary endpoint of the treatment was to evaluate the skin texture, scar quality, the tendon and finger gliding, pain, discomfort and all technique-related complication and a secondary endpoint was to observe the recurrence of the disease.

RESULTS
The patients were evaluated long-term for a stable result. Three cases are actually at five years of follow up. Five cases were submitted to ecography evaluation. All cases are submitted to clinical evaluation in term of maintenance of low contraction grade, mobility, pain, sensibility, strength, scar condition. Only three cases presented recurrence after two years and slide tendon and finger functionality reveal a satisfactory result. Ecography evaluation at six months and one year demonstrated also the permanence of fat pad under superficial skin layer, providing a sliding tendon good environment and, overall, a barrier from affected surrounding fascia.

DISCUSSION
Fat grafting is a common procedure in reconstructive and aesthetic surgery and commonly defined as “lipofilling”. It's commonly employed in several clinical field for its filler role in volume replacement both overall for its stem cell content known as adipose derived stem cell (ADSC) and its capability to provide numerous cytokines. Furthermore, for such reason, several clinical experience were based on its utilisation also in severe Dupuytren treatment even for providing a viable subcutaneous fat capable to protect the neurovascular and tendon structure even for its possible role in modulating the fibroproliferative diathesis. Preliminary satisfactory results have represent a stimulating challenge to introduce this procedure as scheduled with possible future perspectives of numerous clinical data collecting, specific examination, long term follow up, molecular studies and useful guidelines for therapeutic purpose.