Early-stage lymphedema on lymphoscintigraphy is traditionally assumed to reflect fluid-dominant disease favorable for physiologic procedures like lymphovenous anastomosis (LVA). In a retrospective review of 187 extremity lymphedema patients, a subgroup showed severe fat-dominant tissue change despite early Taiwan Lymphoscintigraphy Staging. Younger age, higher BMI, male sex, and infection-related etiology were significantly associated with this discordant phenotype. These patients had modest volume reduction after technically successful LVA, since physiologic procedures don't address established adipose hypertrophy. Findings suggest tissue phenotype—not lymphoscintigraphy stage alone—should guide selection between physiologic and excisional (debulking) surgical approaches.