**Objective:** To assess the impact of levator ani muscle (LAM) avulsion assessment by four-dimensional translabial (4D) ultrasound in the surgical management of pelvic organ prolapse (POP).

**Methods:** Since January 2017, consecutive patients complaining POP (uterine prolapse and/or cystocele) were prospectively recruited. Patient’s assessment included a standardized interview, clinical examination and 4D-ultrasound. All patients underwent a strict sonographic protocol performed with the women supine after voiding, using a GE Voluson E8 and S10 units, during maximal Valsalva maneuver and pelvic floor muscle contraction. LAM avulsion was assessed using volume contrast imaging (VCI) analysis (by two millimeters slices) and tomographic ultrasound imaging (TUI) at 2.5-mm slice intervals on volumes obtained on pelvic floor muscle contraction. Depending of sonographic findings, vaginal pelvic floor fascial surgery or laparoscopic subtotal hysterectomy with mesh (lateral suspension or colposacropexy) were proposed in absence or presence of LAM avulsion, respectively.

**Results:** 106 patients were enrolled. Complete follow-up was available for 40 patients. Mean age was 67 years (range 52-80). Mean parity was 2.4 (range 1-5). Mean BMI was 24.3 (range 19.5-32.2). Median follow-up 16 months (8-20). LAM avulsion was observed in 7 patients (18%). No major surgical complications occurred. POP recurrence after pelvic floor fascial surgery was observed in 2 patients (6%), while in no cases underwent laparoscopic surgery.

**Conclusions:** LAM avulsion assessment by 4D-translabial ultrasound revealed to be an effective triage in identifying patients at higher risk of recurrence, thus determining an overall low prevalence of unsuccessful surgery. Longer and larger studies are necessary to properly confirm the effectiveness of this ultrasound based tailored treatment.