Objective
In this study, we aimed to evaluate the effects of vaginal and cesarean delivery on internal and external anal sphincter measurements by translabial ultrasonography (TL-US) with vaginal probe in nulliparous women.

Methods
A total 105 consecutive women, 60 in vaginal delivery group and 45 in cesarean delivery group, were included in this prospective cohort study. We assessed integrity of the hypoechoic internal anal sphincter (IAS) and hyperechoic external anal sphincter (EAS) and we measured the thickness of both sphincters at the 12, 3, 6 and 9 o'clock positions at distal level prior to delivery and 24-48 hours after delivery. We excluded women who delivered with vacuum or forceps and women with third- or fourth-degree lacerations during delivery (1 patient) or with sphincter interruption on postpartum TL-US (7 patients).

Results
Measurements of IAS muscle thickness were ranged between 1. 81±0. 64SD and 2. 40±0. 77SD mm after vaginal delivery, 2. 14±1. 33SD and 2. 52±0. 73mm after cesarean delivery. The difference between in IAS thickness at 12 o'clock position in the vaginal delivery group before(2. 31±0. 74SD mm) and after delivery (1. 81±0. 64SD mm) was statistically significant (p=0. 009). Measurements of EAS muscle thickness were ranged between 1. 97±0. 85SD and 3. 02±0. 04SD mm after vaginal delivery, 2. 23±0. 82SD and 3. 02±0. 77SD mm after cesarean delivery. The difference between in EAS thickness at 12 o'clock position in the vaginal delivery group before(2. 42±0. 64SD mm) and after delivery(1. 97±0. 85SD) was statistically significant(p=0, 030).

Conclusion
We demonstrated significant focal thinning of both IAS and EAS at 12o'clock position after vaginal delivery, but not after cesarean delivery. These findings may show anal sphincter is better preserved with cesarean delivery compare to vaginal delivery.