OBJECTIVES:
Intravascular optical coherence tomography (OCT) after carotid artery stenting (CAS) revealed that micro-defects after stent deployment are frequent, as demonstrated in a previous report. This is a preliminary study, that aims to evaluate the rate of stent malapposition, plaque prolapse and fibrous cap rupture detected by OCT using a double layer micromesh design carotid stent.

METHODS:
From the 1st November 2014 to the 30th September 2015 Ten patients undergoing protected CAS using the “Roadsaver stent” (Terumo Leuven, Belgium) and high-definition OCT image acquisition were enrolled in the study on 43 patients treated with this device in the same period. OCT evaluation was prospectively randomized 1:3 patients. OCT frames were analysed off-line, in a dedicated core laboratory by two independent physicians, in comparison with data obtained in the previous series with different devices. Cross-sectional OCT images within the stented segment of the internal carotid artery were evaluated at 1-mm intervals for the presence of strut malapposition, plaque prolapse and fibrous cap rupture according to stent design.

RESULTS:
No procedural or post-procedural neurological complications occurred (stroke/death 0% at 30 days). Stent malapposition rate was similar between this stent in comparison with the previous series. However this stent presented a very interesting rate of plaque prolapse and fibrous cap rupture (11.17% and 22.03% respectively).

CONCLUSIONS:
Despite no differences in short term clinical outcomes, OCT evaluation seems to show some advantages in CAS using the double layer micromesh design carotid stent. This device acts like a metallic covered stent, and this property could justify the lower plaque prolapse rate in comparison with results with previous stents.