Introduction: Zero or reduced X-ray exposure during atrial fibrillation (AF) ablation has been pursued in the 3D era. This study aims to assess the feasibility of a simplified fluoroless approach of AF ablation by using intracardiac echocardiography (ICE) and Cartosound™ system (Biosense-Webster, Diamond Bar, CA, USA).

Methods: All geometries of the right atrium (RA), coronary sinus, left atrium, pulmonary vein, left atrial appendage, and esophagus were constructed via a SOUNDSTAR catheter (Biosense-Webster). Fluoroless transseptal puncture was performed under ICE guidance. Pulmonary vein isolation (PVI) was performed with a contact-force sensing catheter in all patients, guided by ablation index.

Result: From January 2019 to July 2019, 86 atrial fibrillation patients with a mean age of 66±12 years, 58% male, 74% paroxysmal AF were included. All geometries were obtained in 23±12 minutes before transseptal puncture. PV isolation was achieved in all patients. Mean total procedure time was 170±44 minutes and mean RF time was 36±16 minutes. No fluoroscopy was used in 51% of patients, while 6.8(3.8-14.7) minutes was used in 49% of patients due to the learning curve. One patient was observed with a moderate pericardial effusion that was managed conservatively with pericardiocentesis and drainage.

Conclusion: Simplified fluoroless catheter ablation of AF is safely feasible using a combination of ICE and Cartosound mapping system.