Aim: To assess the rate of breast carcinoma associated with Radial Scar (RS) and to identify risk factors of this association. The secondary objective was to build a carcinoma prediction score associated with RS.

Methods: This is a retrospective study including 202 patients with histologically confirmed RS. The study was performed on electronic medical records from 1986 to 2012, in the anti-cancer center François Baclesse in Caen, France. Two subgroups of lesions were studied as a function of the final histological results: RS associated with or without carcinoma. Clinical, histological and radiological data were studied as possible risk factors.

Results: Two hundred patients were operated. In total, 126 (63%) were pure RS, 26 (13%) were associated with atypical hyperplasia, 26 (13%) with in situ carcinoma, and 22 (11%) with invasive carcinoma. The mean age of patients with RS + carcinoma was significantly higher than patients without carcinoma (57 versus 51.1 years, p = 0.001). The median size of RS with carcinoma tended to be higher than without carcinoma (10 versus 8 mm, p = 0.07). We built a score, considering age, RS size and mammographic criteria to classify patients at low (score= 0), medium (score from 1 to 5) or high risk (score > 5) of in situ or invasive carcinoma, with risk of carcinomas respectively 0%, 20% and 64%, p = 0.0005.

Conclusions: RS is rare but may be associated with carcinoma. This lesion should undergo a preoperative biopsy. The advanced age of the patient and the large size of the lesion appear to be correlated with a higher risk of association between RS and carcinoma. The development of our carcinoma prediction score could help us to optimize patients’ care. This score must be validated in a prospective study.

Disclosure: All authors have declared no conflicts of interest.