Age and sex differences in the distribution and ultrasound morphology of carotid atherosclerosis: the Tromsø Study.

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Abstract: Atherosclerosis begins early in life and is the major underlying cause of cardiovascular morbidity and death. Yet, population-based information on age and sex differences in the extent and morphology of atherosclerosis throughout life is scarce. Carotid atherosclerosis can be visualized with B-mode ultrasound and is a marker of atherosclerosis elsewhere in the circulation. We assessed both the prevalence and the morphology of carotid atherosclerosis by B-mode ultrasound in 3016 men and 3404 women, 25 to 84 years old, who participated in a population health survey. The participation rate was 88%. Plaque morphology was graded according to whether a plaque was predominantly soft (echolucent) or hard (echogenic). Atherosclerotic plaques were found in 55.4% of the men and 45.8% of the women. In men, there was a linear increase with age in the prevalence of carotid atherosclerosis, whereas in women, there was a curvilinear age trend, with an inflection in the prevalence rate of women at approximately 50 years of age. The male predominance in atherosclerosis declined after the age of 50 years, the plaque prevalence being similar in elderly men and women. Men had softer plaques than women; this sex difference in plaque morphology increased significantly (P=0.005) with age. The sex difference in the prevalence of atherosclerosis and the female age trend in atherosclerosis show significant changes at the age of approximately 50 years, suggesting an adverse effect of menopause on atherosclerosis. The higher proportion of soft plaques in men compared with women increases with age and may partly account for the prevailing male excess risk of coronary heart disease in the elderly despite a similar prevalence of atherosclerosis in elderly men and women.

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