

# Frank's sign: a coronary artery disease predictor

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## DESCRIPTION

A 69-year-old man with follicular lymphoma was admitted for initiation of chemotherapy. On physical examination, the patient was found to have anterior chest median sternotomy scar, also with bilateral



Figure 1 Right ear.



Figure 2 Left ear.

diagonal earlobe creases runs backward at 45° angle as shown in (figures 1 and 2). On further questioning, the patient revealed a history of single coronary artery bypass surgery 10 years ago. His clinical history and examination are consistent with Frank's sign. First described in 1973, Frank's sign is hypothesised to be a dermatological predictor of coronary artery disease,<sup>1</sup> with significant reported association of increased ischaemic heart disease and myocardial infarctions in a large population prospective study of 35 years data collection.<sup>2</sup> Circulating free radical oxidative stress was postulated as potential explanation to the dermatological changes and increases in intima-media thickness of blood vessels.<sup>3</sup> Frank's sign is associated with ageing, but is a useful diagnostic physical examination in adults less than 60 years of age.<sup>4</sup> Our patient did not have any cardiac symptoms, but due to the history of coronary artery disease and advanced age was recommended to have outpatient routine follow-up with primary care physician and risk reduction management.

## Learning points

- ▶ Frank's sign is a diagonal earlobe crease that extends 45° backwards from the tragus to the auricle, which is hypothesised to be a predictor of atherosclerotic disease.
- ▶ Large population prospective study has shown significant association of Frank's sign with increased risks of ischaemic heart disease and myocardial infarctions. It shows possibility of being independent risk factor and may predict severity for coronary artery disease.
- ▶ Reliable clinical correlations that predict atherosclerosis are needed to identify at-risk patients. Frank's sign has usefulness being a diagnostic physical examination finding in adults less than 60 years of age.

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**Competing interests** None.

**Patient consent** Obtained.

**Provenance and peer review** Not commissioned; externally peer reviewed.

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