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## LETTER TO THE EDITOR

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Dear Sir,

### High incidence of thyroid cancer in central Italy

*Cancer of the thyroid in Volume VII of Cancer Incidence in Five Continents (Parkin et al., 1997) showed unexpectedly high incidence rates in central Italy in 1988–1992. An incidence rate (age-standardized to the world standard population) of 11.1/100,000 women was reported in the Ferrara province (i.e., only lower than that among Filipinos in Hawaii and Los Angeles and in French Polynesia). The Romagna region (9.1/100,000 women) and the Macerata province (8.9/100,000 women) showed higher rates than among any other Caucasian population, except Iceland (9.8/100,000 women). Thyroid cancer in men showed a similar pattern, although at lower levels.*

*Thyroid cancer is a relatively uncommon neoplasm, whose only established risk factor is ionizing radiation (Ron, 1996). Iodine deficiency and related diseases (goiter) have long been associated with thyroid cancer risk, but high rates are also found in areas, most notably Hawaii and Iceland, where iodine intake has always been high (Franceschi and Dal Maso, 1998). The picture is further complicated by wide variations in clinical behavior and, possibly, etiology, depending upon the histological type (Franceschi and Dal Maso, 1998). Undifferentiated carcinomas are very rare, rapidly progressing tumors, while papillary carcinomas (which represent the vast majority of thyroid cancer in developed countries) show 98% 5-year survival rates (Gilliland et al., 1997). The use of modern diagnostic tools—scintigraphy, ultrasonography, and fine-needle aspiration—has led to a rise in diagnosis and treatment of indolent papillary slow-growth nodules (Correa and Chen, 1995).*

*The high rates in some areas of central Italy may stem from a high prevalence of some poorly defined risk factor(s). There is no reason to suspect exposure to particularly high radiation levels. Conversely, iodine deficiency is possible, since endemic goiter has been common in the past in several parts of central Italy, and iodine supplementation has never been undertaken systematically (Franceschi and La Vecchia, 1994). Goiter is an earmark of some world-famous old paintings from these regions. For instance, Piero della Francesca's *Madonna del Parto* and *self-portrait (from Resurrection)*, painted in the 15th century, showed clear signs of goiter (Fig. 1a,b).*

*The examination of the distribution of thyroid cancer in the registries of Ferrara, Romagna and Macerata indicates that*

*these are in about 70% of cases papillary and affect young and middle-age women to a greater extent than elderly ones. Age-specific incidence rates are significantly higher in Romagna (the largest of Italian Registries considered) than in white women in the United States (Mantel-Haenszel-Cochran test = 20.19,  $p < 0.001$ ) and in England and Wales (Mantel-Haenszel-Cochran test = 387.08,  $p < 0.001$ ), and the clearest excess is seen in women 35–54 years old (Fig. 2). This points to a role of intense surveillance of thyroid nodules in these age groups in addition or rather than to long-standing causes (e.g., iodine-deficiency).*

*Although survival is excellent, a diagnosis of papillary carcinoma of the thyroid, however small and well differentiated, carries marked consequences, including total thyroidectomy and lifelong thyroid hormone replacement at levels able to suppress thyroid stimulating hormone (Franceschi and La Vecchia, 1994). Careful review of medical records and, possibly, an ad hoc case-control study should clarify the reasons for thyroid cancer excess in central Italy and indicate possible preventive actions.*

Silvia FRANCESCHI<sup>1\*</sup>, Carlo LA VECCHIA<sup>2</sup> and Ettore BIDOLI<sup>1</sup>

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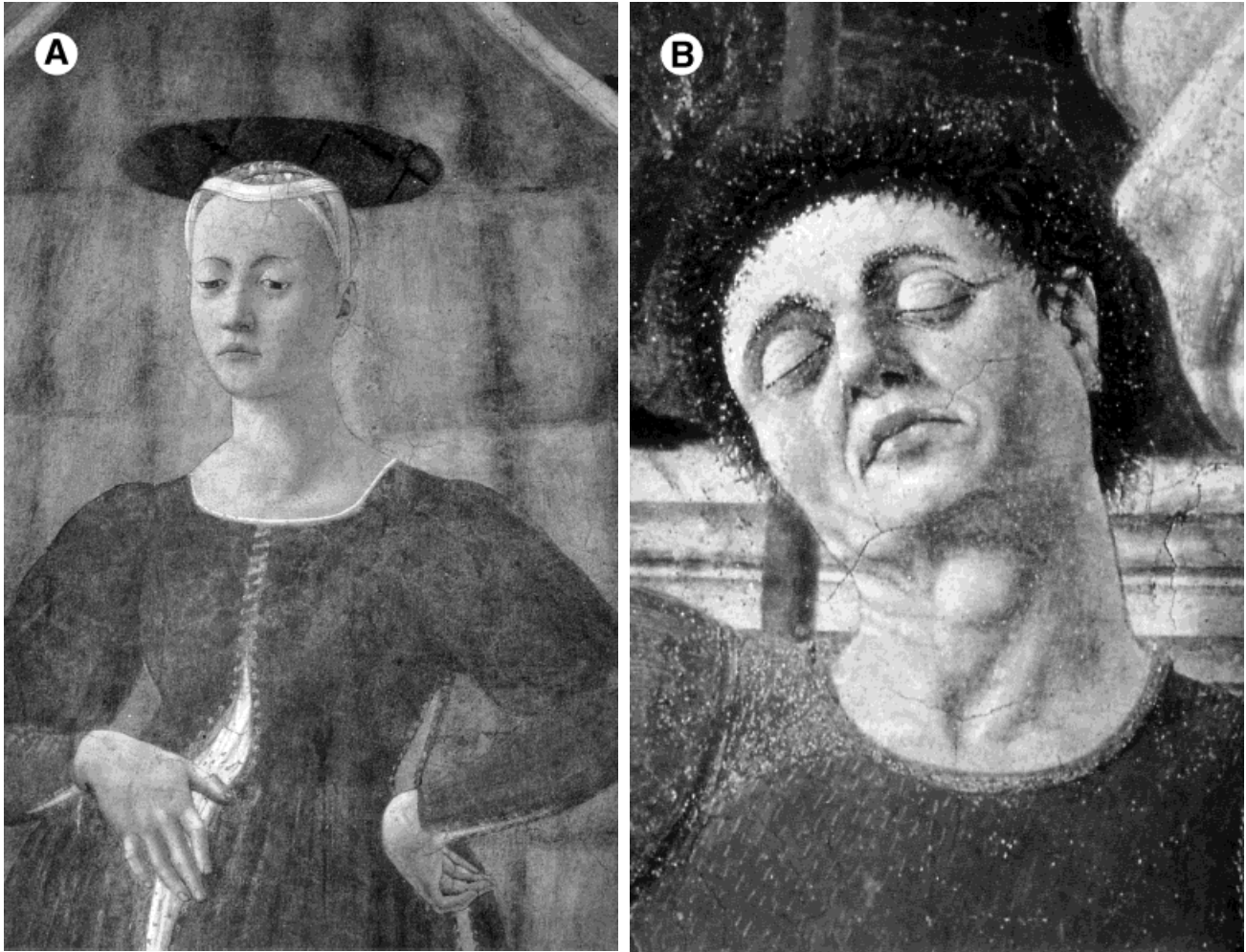


FIGURE 1 – Details from 2 of Piero della Francesca's paintings. (a) Madonna del Parto (ar. 1459). Cappella del Cimitero, Monterchi. (b) Detail from Resurrection (1468). Museo Civico, Sansepolcro.

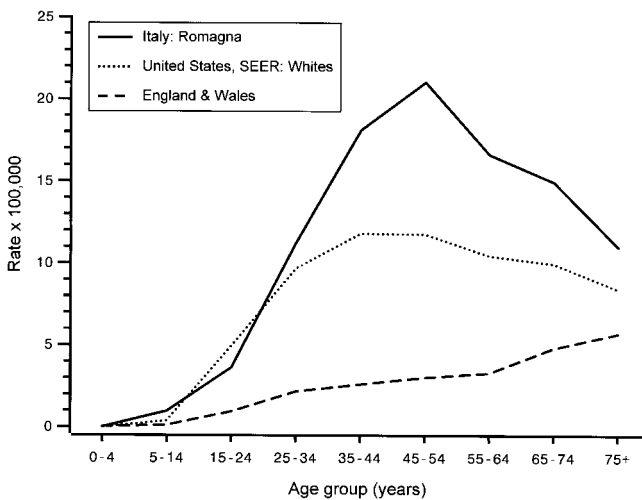


FIGURE 2 – Age-specific incidence rates of thyroid cancer in females in Romagna, Italy; United States, whites; and England and Wales. Data from Parkin *et al.* (1997).

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