

## Goiter in Representational Art

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### Abstract

Finding of goiter in representative art is very frequent since the Hellenistic age. Even during the Middle Ages and the Renaissance, many models were portrayed with swelling thyroids, as goiter was very common in the general population, especially in females. The widespread presence of goiter has conditioned representation of women by artists. The depiction of diffuse or nodular goiter became even more evident when portraits of known and/or identifiable models required faithful representation rather than idealization.

**KeyWords:** Goiter-Representational, Art, Iodine, deficiency, Renaissance, Modern Art

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### Introduction

Goiter, defined as an enlargement of the thyroid gland, has been, since the origin of the human species, one of the most common non-communicable diseases. Because iodine is required for thyroid hormone synthesis, diffuse and/or nodular goiter, resulting from a persistent thyroid stimulation, represents the adaptive response to adverse environmental conditions, namely nutritional iodine deficiency. Endemic goiter, defined on a pure epidemiologic basis (i.e., a condition affecting more than 10% of the general population), was widely present in large parts of Europe and Mediterranean area as the predominant iodine deficiency disorder (IDD). IDDs, which include various degrees of mental retardation and somatic and neurological features, of which endemic cretinism is the most severe, have been tackled since nearly a century by dietary supplementation of iodine. Iodine prophylaxis, based on the fortification of table salt, is now applied in all industrialized countries and in many low income countries. Italy has only recently been included among iodine-sufficient countries, thanks to the law that in 2005 introduced iodine prophylaxis with iodine-fortified salt on a voluntary basis [1,2].

On this pathophysiological and historical background, it is not surprising that goiter was present in many art masterpieces throughout the centuries. This short article aimed at reporting some examples representation of goiter in Representative Art derived from clue articles, published in the Endocrinology & Art section of the Journal of Endocrinological Investigation, devoted to the description of fine art works describing physical signs of endocrine disorders.

It must be noted that, contrarily to the representation of disfiguring features, such as nanism, gigantism, facial or somatic dysmorphic characteristics, including exophthalmos (bulging eyes) of Graves' orbitopathy [3], thyroid swelling depiction rarely reflects the artist's awareness of the presence of a disease, but is rather the pure representation of a current feature of human body in the artist's experience, especially of female models.

### Hellenistic Art

Representation of the human figure in Classical Greek sculpture was based on the exaltation of the canons of ideal beauty. In fact, statues showing pathological characteristics or features indicative of deformity or disease are virtually inexistent. At variance, goiter is evident in Hellenistic sculptures as shown, for example, in two marble portraits of the dramatist Menander [4] depicting clear features of a nodular goiter (Fig.1) . Of interest is also the representation of goiter in an Egyptian Mummy of the Hellenistic period [5] (Fig. 1).

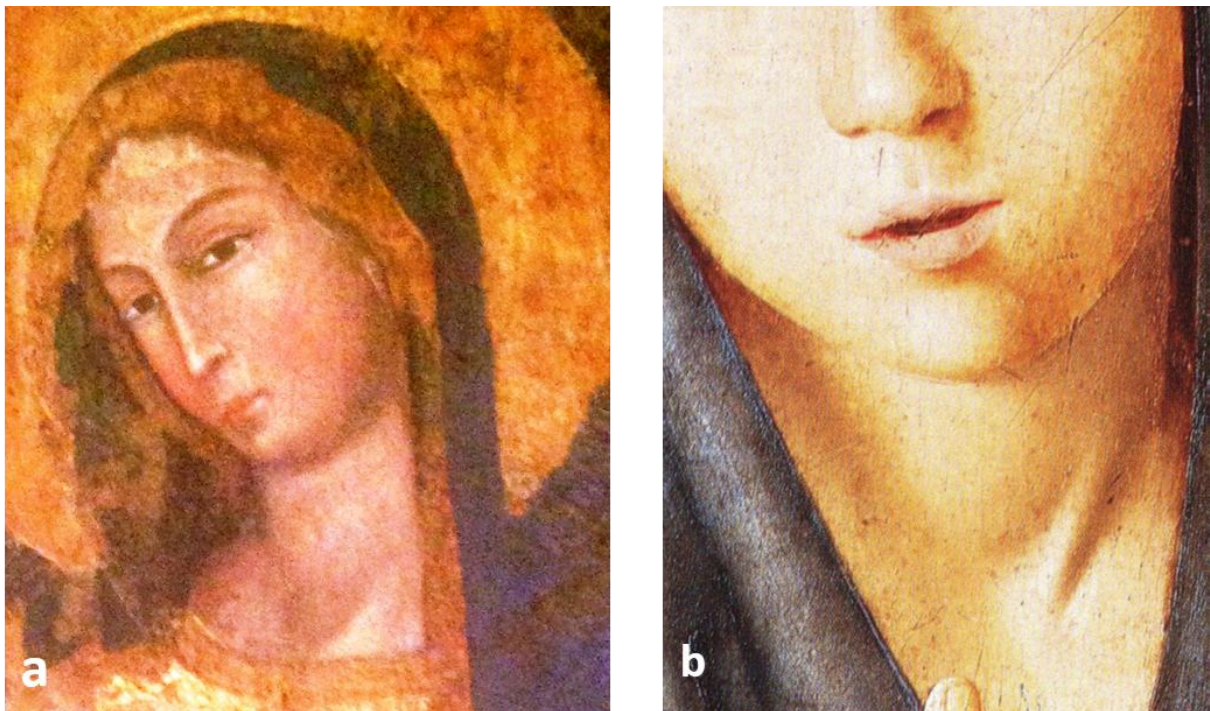
Fig. 1. a) Marble protrait of Menader with nodular goiter (4) and b) Egyptian Mummy portaited with diffuse goiter(5)



### Middle-Age and Renaissance in Italy

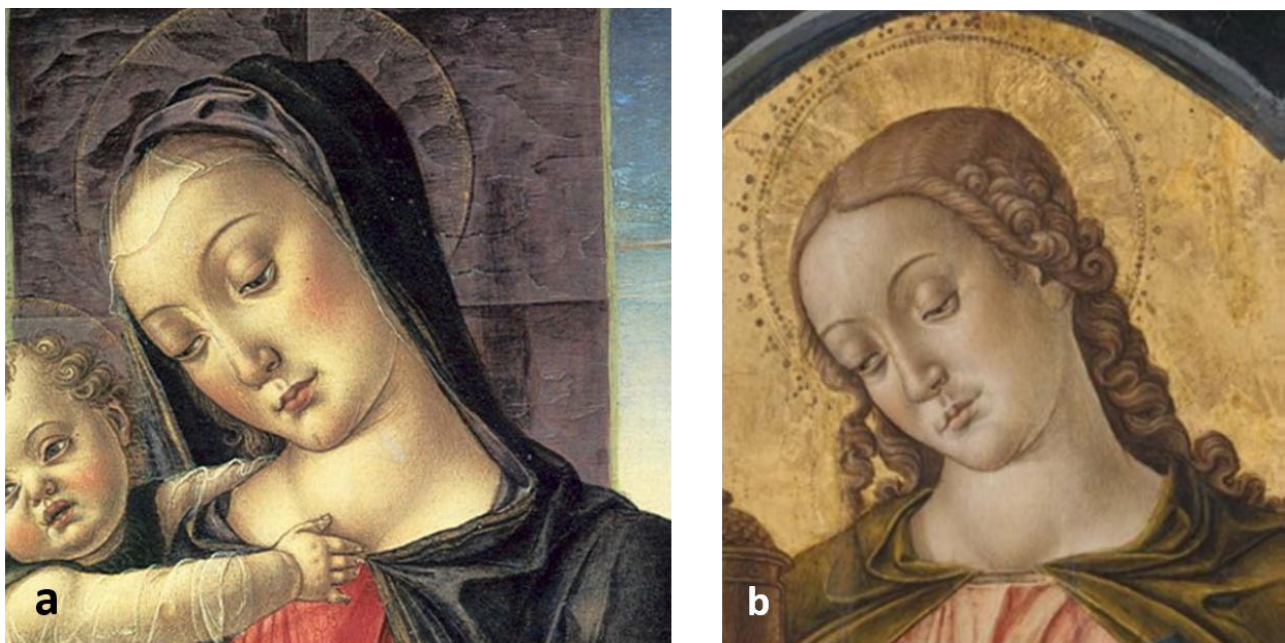
Representation of goiter is very frequent in Medieval and Renaissance Italian art. Several icons of the Virgin Mary depict Her with a clear thyroid enlargement, because this abnormality was very common in the population. Two outstanding examples coming from Sicily(Fig. 2), are represented by the *Virgin breastfeeding the Child*, housed in Monreale, near Palermo [6], and the Antonello da Messina's *Virgin Annunciat* , exposed in Munich [7]. The model portrayed as Virgin Annunciate likely is an adolescent living in Messina with a small but evident pubertal goiter. Several masterpieces in early and late Italian Renaissance portrait goitrousfemale models, such as those reported in Endocrinology & Art section [8,9].

**Fig. 2.** Diffuse goiter in Virgin Mary representation.a) Details of an icon of the Virgin in Monreale, Sicily (6) and Antonello's Virgin Annunciate in Munich (7)



Intriguing is the case of the portrait of the same goitrous model by Bartolomeo Vivarini representing both the Virgin Mary and Magdalene [10] (Fig.3). Some artists of the same Age depicted goitrous characters, frequently representing ugly [11,12] and/or cruel and sinner individuals [13-15], or damned persons [16] (Fig.4), as previously reported in the Middle Age [17].

**Fig 3.** The same model portrayed by Bartolomeo Vivarini as a) Virgin Mary and b) Magdeleine (10)



More rarely, goiter is evident also in male models, as in a painting by Giorgione [18] (Fig. 5).

Fig. 4. Ugly, cruel, sinner or damned individuals with goiter ( 11-16)



Fig 5. Healthy young boy with visible goiter (18)



Fig 6. Flora, detail of *Primavera* by Sandro Botticelli (19)



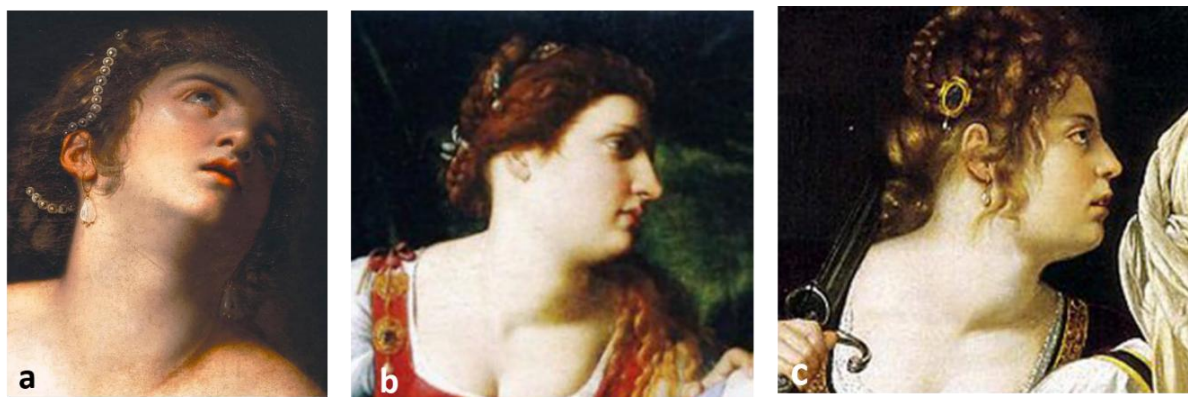
Fig. 7. Old woman with huge multinodular goiter by Caravaggio (20)



Particularly original is the interpretation of facial features of the model of Flora (Fig.6) in the universally known *Primavera* by Sandro Botticelli. The author of the Endocrinology & Art paper speculated about the possible differential diagnosis with a thyroid neoplasm, medullary thyroid cancer, based on the presence of a facial rash [19].

In late Renaissance period particularly impressive is nodular goiter (fig. 7) (depicted by Caravaggio[20]). But also many female models portrayed by Artemisia Gentileschi to represent mythical or Biblic heroines (Fig.8) exhibited a diffuse or nodular goiter (21,22).

Fig. 8. a) Lucretia, b) and c) Judith: two heroines depicted by Artemisia Gentileschi (21,22 )



### Popular and devotional art crafts

Goitrous subjects are frequently found in popular crafts, such as the Nativity scene figurines (23, 24) and in decorative elements in architecture (25).

Three examples are reported in Figure.9.

Fig.9. Popular art crafts depicting shepherds (a, b) and a gargoyle (c), (24-26)



### Modern and contemporary art

Representation of goiter in modern and contemporary art has lost the exemplary and moralizing meaning that can be deduced from the characteristics of the subjects represented in the aforementioned works.

Particularly impressive is the representation of Dante's iconic Beatrice image by portraits of nice models certainly affected by diffuse and / or nodular goiter, belonging to the *Preraphaelite Brotherhood* in England (26-28.). Diagnosis can be confirmed also by photographs of the model (Fig. 10).

A visible goiter is evident in the self-portrait of a Sicilian Princess (Fig.11) (29), in the portrait of his wife painted by Ubaldo Oppi (30), in a portrait of a young fellow of Mario Sironi (31), both in Italy, as well as in a portrait of a beautiful German lady (32), to underscore the widespread presence of goiter due to IDD in Europe, also in an urban context (Fig.12).

Fig. 10 Prerafaelitate brotherhood models with goiter,two portraits (a,b) and (c) a photograph of the model portrayed in (b), ( 26 ,27)



Fig. 11. Self-portrait of a Sicilian Princess (29)

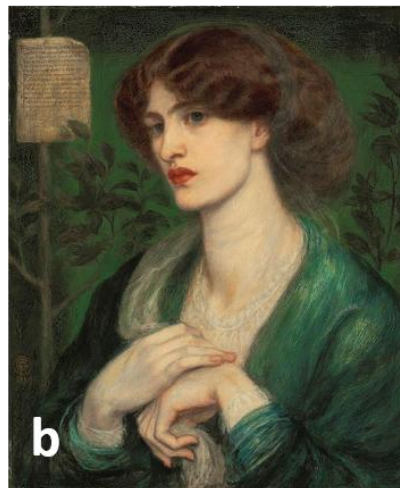


Fig. 12. Portrait of a young woman with a visible diffuse goiter (32)



## Conclusion

Revisitation of the numerous articles reviewed here is not just a simple cultural game hunting for curiosities in the great and minor figurative art. This short research provides elements to understand the environment surrounding artists in Europe, with particular regard to the Mediterranean area, from the classical age onwards. It can reasonably be affirmed that the many people artists met in had variable degrees of thyroid enlargement (goiter) caused by widespread iodine nutritional deficiency. Almost inevitably or at least very frequently, a female model living in an iodine-deficient area likely had an enlarged thyroid gland.

Particularly significant is the lesson provided by the analysis of paintings whose models are known people or, directly, the portrayed subject. The presence of goiter is evident in the young models and wives of Pre-Raphaelite artists in England and also in Italy, where some artists of consciously highlighted thyroid enlargement.

**Conflicts of Interest.** The Authors declare no conflict of interest

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