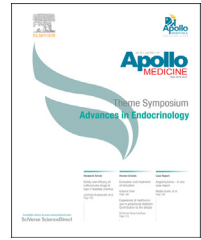


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Review Article

Evaluation and treatment of hirsutism

Kalpana Dash*

Professor, Senior Consultant, Department of Endocrinology, Apollo Hospitals Bilaspur, Seepat Road, Lingiadhi, Bilaspur 495006, India

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ABSTRACT

Hirsutism is a common endocrinological disorder in clinical practice. The causes vary from simple idiopathic hirsutism to most complicated malignant ovarian and adrenal tumors. Most common cause of hirsutism in endocrine clinic is due to a disorder known as PCOS (polycystic ovarian syndrome). Hirsutism poses embarrassment to the women. The purpose of this short review is to identify the common diseases associated with hirsutism, an approach to working through the differential diagnosis, investigations helping in diagnosis and the commonly available treatment modalities for the various forms of hirsutism. The review will provide the physician about the most efficient, cost effective and safe clinical approach to management of hirsutism.

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1. Definition of hirsutism

Hirsutism is defined as excessive male pattern terminal hair growth in women.¹ It must be distinguished from hypertrichosis which is excessive growth of vellus hair in androgen independent non-sexual areas, commonly found in familial background, metabolic diseases (anorexia nervosa, thyroid disorders) and certain medications (phenytoin, minoxidil & cyclosporine). The amount and location of the hair is commonly measured by Ferriman–Gallwey² scoring system which should score at least 8 (Fig. 1).³ Hirsutism can be defined by a total score of 8 or more by Ferriman–Gallwey hirsutism scoring system.

2. Etiology of hirsutism

Most common (80%) cause of hirsutism is polycystic ovary syndrome (PCOS).^{1,4} PCOS is a complex disorder comprising both hormonal and metabolic abnormalities. This diagnosis is

typically made when there is unexplained chronic hyperandrogenism and oligo-anovulation. Other features associated with PCOS are menstrual irregularity, polycystic ovaries, or central obesity, abnormal carbohydrate and lipid metabolism, acanthosis nigricans, or family history of type 2 diabetes mellitus and infertility.⁵ Gonadotropin-dependent functional ovarian hyperandrogenism is the major source of the hyperandrogenemia in majority of PCOS cases.⁶ Insulin resistance is common in PCOS. Non-classic adrenal hyperplasia is present in less than 5% of hyperandrogenic women in the general population. Androgen secreting tumors are present in about 0.2% of hyperandrogenic women, 50% of them are malignant.⁷ Hyperprolactinemia, Cushing's syndrome, acromegaly, and thyroid dysfunction must be considered as uncommon causes of hirsutism. Use of androgens or androgenic medications, such as anabolic steroids or danazol, or valproic acid should be ruled out while evaluation. Those women having hirsutism without hyperandrogenemia and normal menstrual cycle are known as idiopathic hirsutism.

* Tel.: +91 9630013474.

E-mail address: drkdash@rediffmail.com.

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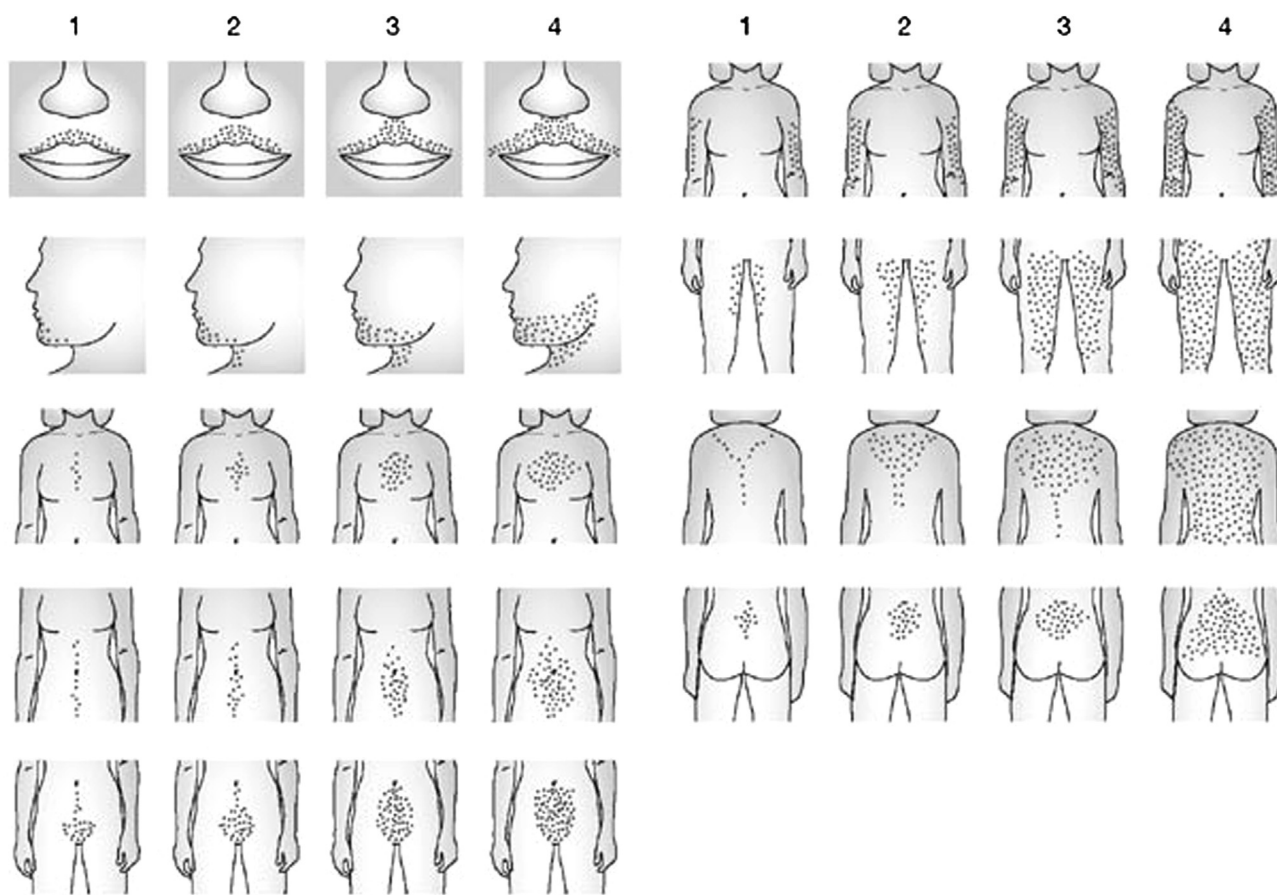


Fig. 1 – Ferriman–Gallwey hirsutism scoring system: Each of the nine body areas most sensitive to androgen is assigned a score from 0 (no hair) to 4 (frankly virile), and these separate scores are summed to provide a hormonal hirsutism score. R. Hatch et al: *Am J Obstet Gynecol* 140:815–830, 1981.³

3. Causes of hirsutism

1. Ovarian:
 - Polycystic ovarian syndrome (PCOS) – 80%
 - Hyperthecosis (a severe PCOS variant)
 - Ovarian tumor.
2. Adrenal:
 - Nonclassical adrenal hyperplasia – 4.3%
 - Cushing's syndrome
 - Glucocorticoid resistance
 - Adrenal tumor – 0.2%.
3. Specific conditions associated with pregnancy:
 - Luteoma pregnancy
 - Hyperreactio luteinalis
 - Aromatase deficiency in fetus.
4. Others:
 - Idiopathic hirsutism (ovulatory cycle with normal plasma testosterone) – 7.6%
 - Idiopathic hyperandrogenism (patients who do not fall into any category) – 15.5%
 - Medications – danazol, testosterone, phenytoin, minoxidil, anabolic steroids, diazoxide, valproate
 - Hyperprolactinemia, hypothyroidism, growth hormone excess, insulin resistance.

4. Clinical approach & diagnosis of hirsutism

Hirsutism is a clinical diagnosis. Therapeutic approach to patient with hirsutism needs accurate diagnosis of underlying abnormalities in androgen production and metabolism. The diagnosis of hirsutism depends on clinical history and physical examination. The age of onset of hirsutism, area of distribution and the rate of progression should be determined. Simple hirsutism should be differentiated from virilization which is a more severe form of androgen excess signifying higher rates of plasma testosterone production. This is identified by the presence of temporal balding, deepening of voice, decreased breast size, increased muscularity, presence of clitoromegaly and loss of female body contours. Before going for a major work-up for hirsutism or virilization, never forget to rule out use of exogenous androgen or other medications causing androgen excess and hirsutism. All old papers should be thoroughly checked to look for these medications. Androgen excess at the time of puberty is most commonly due to PCOS or nonclassical adrenal hyperplasia. Patients with PCOS present with menstrual irregularity (amenorrhea, oligomenorrhea and DUB), hirsutism, infertility. Oligomenorrhea is missing 3–4 cycles in a year or cycle lengths more than 35 days. It is the most common form of chronic anovulation

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