Pseudocyesis

Stephanie J. Campos, BSN, DNP, and Denise Link, PhD, FAAN

ABSTRACT

Pseudocyesis is a rare, but debilitating somatic disorder in which a woman presents with outward signs of pregnancy, although she is not truly gravid. Commonly, women of lower socioeconomic status, limited access to health care, and feeling under significant stress to conceive are most at risk for this disorder. Although depression is a frequent comorbidity alongside pseudocyesis, endocrinologic disorders have been documented that mimic signs of polycystic ovary syndrome. This complex array of concerns requires an understanding of similar differentials and treatment options.

Keywords: factitious pregnancy, delusion of pregnancy, pseudocyesis, somatic disorder

BACKGROUND

When a woman presents with presumptive signs of pregnancy, pseudocyesis should be included in the differential, despite its rarity. According to the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*), pseudocyesis (or pseudocyesis vera) is a derivative of the Greek words, *pseudçs*, meaning "false," and *kyçsis*, meaning "pregnancy."[1,2] It is categorized under Somatic Symptom and Related Disorders, for debilitating mental health affliction leading to somatization.[1,3]

The medical literature has reported about 550 cases of pseudocyesis, with patients ranging in age from 6 to 79 years.[4] The majority of cases occur within the 20- to 44-year age group. In the Western world, the incidence is 1-6/22,000 births.[5]

The World Health Organization's Mental Health Action Plan emphasizes the importance of improving women's mental health, particularly when coupled with significant stress, poverty, and domestic abuse.[6] HealthyPeople 2020 estimates that 1 in 17 American adults suffer from mental illness.[7] Depression, which often underlies pseudocyesis, accounts for 4.3% of all diseases worldwide and is a leading cause of disability both globally and in the United States.[6,7] Major depression involves a 40%-60% increased risk for premature death, often as a result of additional poorly managed illnesses.[1,6]

American Association of Nurse Practitioners (AANP) members may receive 0.7 continuing education contact hours, approved by AANP, by reading this article and completing the online posttest and evaluation at cecenter.aanp.org/program?area=JNP.

PRESENTATION

Pseudocyesis commonly presents outside of the mental health setting, with somatic manifestation of pregnancy, triggered by severe distress related to childbearing; for instance, recent miscarriage, infant loss, or an extreme fear of pregnancy. Low socioeconomic status, limited education, a history of infertility, relationship instability, and having an abusive partner are common features of the female with pseudocyesis.[1,2,5,8] Eighty percent of these patients are also married.[5] The condition manifests more frequently among younger women and within cultures placing great value on childbearing and motherhood.[1]

Considering these attributes, pseudocyesis is more common in underdeveloped regions of the world, but is certainly not isolated to those areas.[1] For instance, in Africa, its current incidence is relatively common, occurring in 1 of every 160 of infertility treatment patients, although historically the rate has been recorded as 1 in every 25 births. In developed countries, the incidence has decreased significantly over recent decades.[2,5] However, the African-American subculture maintains a greater predilection for pseudocyesis because of emphasis placed on fertility and motherhood.[1]

Populations with convenient health care access may be corrected early in the purported pregnancy using substantive evidence (eg, laboratory analysis, ultrasound) to the contrary.[1,5] Unfortunately, women with limited or no access may continue their "pregnancy," even through "labor."[1]

ASSESSMENT

In pseudocyesis, the patient history may reveal oligo- or amenorrhea, changes in appetite, nausea, weight gain, a sensation of fetal movement, breast enlargement or secretion, and even labor pain.[1,2,5] Symptoms may persist from a few weeks to beyond 9 months.[5]

At initial observation, the patient's posture may appear lordotic, and, during the physical assessment, darkened pigmentation may be noted on the face, abdomen, or around the areola. Abdominal distension is another common manifestation, but, upon further evaluation, several characteristics are quite different from true pregnancy. First, the umbilicus in pregnancy is typically everted, whereas, in pseudocyesis, the umbilicus remains inverted. Second, the abdomen is uniformly round, as opposed to a womb-favoring fetal lie. Finally, in pseudocyesis, abdominal palpation reveals a tight rubbery sensation, and percussion elicits tympany.[1,2,5,8]

To facilitate diagnosis, recall that the presumptive signs of pregnancy include abrupt-onset amenorrhea (at least 10 days after menses were due to begin), nausea and vomiting, breast tenderness and enlargement, urinary frequency, and fatigue (see Table). Probable signs, present on objective evaluation, include colostrum expression, and skin changes, such as cholasma, linea nigra, and abdominal striae. Not only will the abdomen appear enlarged, but the uterus is enlarged as well, with palpable and ballottable fetal parts (particularly apparent in the third trimester).[9] Other presumptive signs include Chadwick's sign (increased vascularity of ectocervix, which appears dark bluish-red), Hegar's sign (softening of the isthmus between cervix and uterus), Goodell's sign (cervical edema), palpable Braxton-Hicks contractions, a positive urine pregnancy test, and palpable fetal movement.[9,10] Serum human chorionic gonadotropin (hCG) is helpful in diagnosis as false-positive results are rare, but may occur in women who work extensively with animals, or have renal failure, a physiologic pituitary hCG, or an hCG-producing tumor (such gastrointestinal, ovary, bladder, or lung).[10] The only definitive signs of pregnancy to rule out pseudocyesis include fetal visualization via ultrasound or fetal heart rate auscultation by Doppler.[9,10] Around the sixth week of gestation, an embryo should be visualized via ultrasonography,[10] but, ultimately, sound clinical judgment must be employed when deciding on how long to continue testing for true pregnancy.

Table. Signs of Pregnancy

Presumptive & Probable	Definitive
• Abrupt-onset amenorrhea • Nausea/vomiting • Breast tenderness/enlargement • Urinary frequency • Fatigue • Colostrum production • Chloasma/linea nigra/abdominal striae • Abdominal enlargement • Chadwick's sign • Hegar's sign • Goodell's sign • Braxton-Hicks contractions • Palpable fetal parts/movement • Positive human chorionic gonadotropin	• Fetal visualization via ultrasound • Fetal heart rate auscultation via Doppler

Adapted from King et al.[9], confirmed by Cunningham et al.[10]

DIFFERENTIALS

An important differential diagnosis from pseudocyesis is *delusion of pregnancy*, which lacks physical signs of pregnancy. The *DSM-5* categorizes delusion of pregnancy under the schizophrenic spectrum and psychotic disorders, thus necessitating a very different treatment from that of pseudocyesis.[1,2] Two other differentials include *factitious* (or *deceptive*) *pregnancy* and *erroneous pseudocyesis*. A woman who consciously behaves as if pregnant for some gain (eg, sympathy, attention) is said to be experiencing a factitious pregnancy. On the other hand, if a presumptive or probable sign of pregnancy occurs (eg, amenorrhea or galactorrhea), *causing* a female to erroneously believe herself pregnant, it is considered an erroneous pseudocyesis.[1] Pathologic conditions precipitating erroneous pseudocyesis may include tumors, hydatidiform mole, ovarian cysts, uterine fibroids, ascites, urinary retention, and so forth, all of which must be ruled out in the absence of true pregnancy.[8,11]

PATHOPHYSIOLOGY

The diagnosis of pseudocyesis presents an interesting dichotomy: psychological insults from a person's behavioral and emotional state have been known to

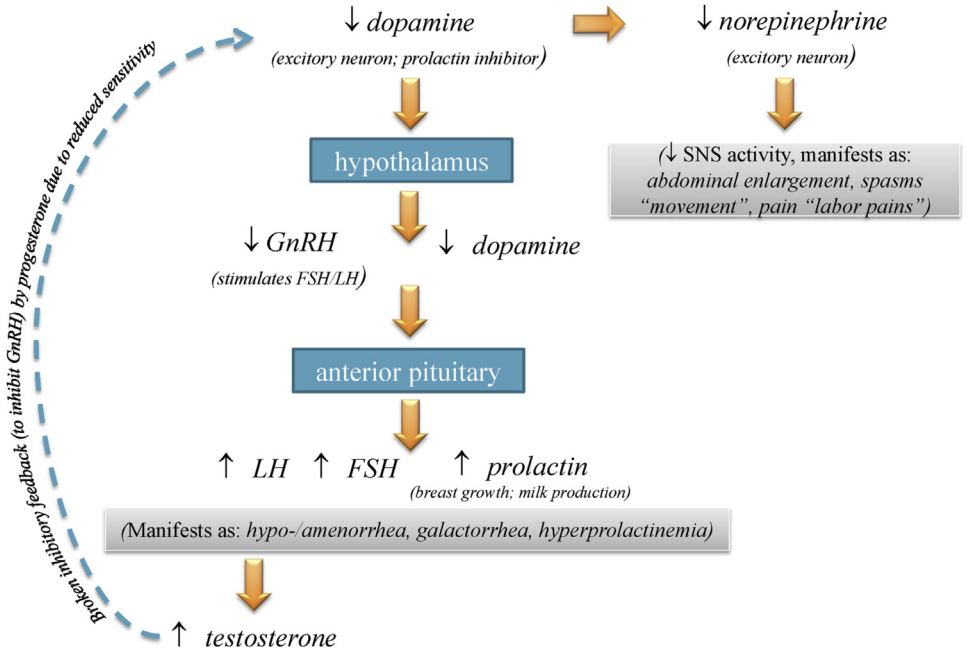
confound or even cause physical alterations, including infection, cancer, diabetes, and cardiovascular disease.[12] Conversely, physical illness (both acute and chronic) is known to deteriorate mental well-being.[12] Is societal pressure or a traumatic event the underlying precursor to pseudocyesis? Or is the physical dysfunction of infertility or abnormal menstruation undermining a healthy mental state?

As cases of true pseudocyesis in the literature are rare, there are no evaluation, testing, or treatment guidelines, and published data are widely variable. With individual studies and such small sample sizes (eg, $n = 1$), the endocrinology and pathophysiology of pseudocyesis has traditionally been regarded as inconclusive.[1,4] However, in a literature review by Tarin et al.,[1] the research team pooled reports from 10 female patients, observing several common endocrinologic and pathologic traits (see Figure).

Deficits in dopamine are often observed in pseudocyesis; so it is not surprising that depression, anxiety, or emotional distress are hallmarks of patients suffering from the condition. It has long been supposed that the catecholaminergic pathway, which regulates anterior pituitary hormone secretion, is dysfunctional in women presenting with pseudocyesis.[1] Because dopamine inhibits the gonadotropin-releasing hormone, leutinizing hormone pulsatility, and prolactin levels, a deficiency can cause elevations in the latter hormones, including an elevated leutinizing hormone/follicular-stimulating hormone ratio.[1] Oligo- or amenorrhea, galactorrhea, and hyperprolactinemia may result, accounting for reported signs in pseudocyesis.[1] When catecholaminergic activity is reduced, so may be the steroid feedback, allowing a rise in gonadotropin-releasing hormone and subsequent leutinizing hormone production, particularly when compared with follicular-stimulating hormone. This is particularly seen in women with polycystic ovary syndrome.[1] Researchers have noted extensive endocrinologic similarities between pseudocyesis and polycystic ovary syndrome, which is a common condition implicated in oligo/amenorrhea and infertility.[1,13]

In regard to abdominal enlargement, "fetal movement," and "labor pain," research suggests increased sympathetic nervous system activity is responsible for perceived symptoms.[1] Chronic diaphragmatic contraction, increased abdominal adipose tissue, constipation, and lordotic posturing

Figure. Suspected pseudocyesis pathophysiology



FSH = follicle-stimulating hormone; GnRH = gonadotropin-releasing hormone; LH = luteinizing hormone.
See Tarin et al.[1] King et al.,[9] and Sherwood.[16]

may contribute to why the abdominal distention is visible.[1] Some researchers believe pseudocyetic women initially experience *abdomino-phrenic dyssynergia*, which is prolonged diaphragmatic contraction accompanied by abnormal contraction and relaxation of the abdominal muscle.[1] This phenomenon results from chronic gas and bloating leading to abdominal distension.[1] Subsequently, abdominal spasms occur (such as those inferred in pseudo-labor), called *hysterical abdominal proptosis*.[1]

Curiously, in some cases, when a pseudocyetic patient is sedated with anesthesia or accepts the truth of her nonpregnant state, the abdominal distention spontaneously resolves, with or without passing flatus.[1,14] Yet, in some case studies, once the patient returns to consciousness, the distension returns to its pre-anesthesia girth.[14]

Kamal et al.[8] also believe the occurrence of pseudocyesis near menopause occurs secondary to normal aging physiology, with irregular menstruation cycles and increasing fatty deposits in the abdomen and breast tissue.

As far as the psychophysical complexities, anxiety and depression can lower pain threshold and increase pain intensity,[12] and this may also explain the "pregnancy" pain or "labor" pain. Obesity, often observable in abdominal distension, is tightly linked with depression. Feelings of inadequacy *vis-à-vis* appearance only complicate pressures for pregnancy or feelings of turmoil from an unexpected loss, from which depression spirals downward. Depression can directly lead to obesity in terms of sedentary behavior and unhealthy diet and, as an added insult, many psychiatric medications cause weight gain and amenorrhea, leading some patients to believe themselves pregnant.[12,15]

TREATMENT

Recurrent cases of pseudocyesis have been reported, giving credence to an underlying psychiatric disorder.[5] When a mood disorder is the root of pseudocyesis, negative pregnancy markers are likely to antagonize the woman's psychological imbalance.[4] Unfortunately, somatic diseases, such as pseudocyesis, often manifest in apathy to seek treatment for mental health concerns.[12] Instead, these patients may present frequently for inconsequential physical ailments, never discussing unrequited emotional needs, as the topic is rarely breached by physical health providers, nor is it an expected part of conversation by patients in settings outside of the psychiatrist's office.[12] Regardless, referral for psychiatric evaluation is imperative, as combined psychodynamic and psychotherapy, and possibly even pharmacotherapy, are preferred treatments.[2,4,12]

Suggestions for pharmacotherapy are limited in the literature. Dopamine has successfully treated pseudocyesis in animals, canines in particular, by suppressing prolactin levels, but the extent of prolactin's role in human pseudocyesis is not as well understood.[14]

IMPLICATIONS

Practitioners presented with this situation in the realm of primary care must be cognizant, recognizing signs, such as those discussed, that necessitate psychiatric follow-up. The practitioner is in a unique position to influence the next steps a woman with pseudocyesis chooses to take, as her first expert contact. The prudent practitioner understands, however, that he or she is likely to trigger increased depression with news of her nongravid state, but also has an opportunity to foster a trusting relationship during this difficult time. With a customized primary care and mental health collaborative plan, the patient may be more likely to take her first steps toward recovery.[7,12] JNP

References

1. Tarin JJ, Hermenegildo C, García-Pérez MA, Cano A. Endocrinology and physiology of pseudocyesis. *Reprod Biol Endocrinol*. 2013;11(39):1-12.
2. Yadav T, Balhara YPS, Kataria DK. Pseudocyesis versus delusion of pregnancy: differential diagnoses to be kept in mind. *Ind J Psychol Med*. 2012;34(1):82-84.
3. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders. 5th ed*. Arlington, Va: APA; 2013.
4. Hoffman BL, Schorge JO, Schaffer JI, Halvorson LM, Bradshaw KD, Cunningham FG. *Williams Gynecology. 2nd ed*. New York: McGraw-Hill Medical; 2012.
5. Ibekwe PC, Achor JU. Psychosocial and cultural aspects of pseudocyesis. *Ind J Psychiatry*. 2008;50(2):112-116.
6. World Health Organization. Mental Health Action Plan 2013-2020. http://www.who.int/mental_health/publications/action_plan/en/. Accessed April 21, 2015.
7. HealthyPeople.gov. Mental health and mental disorders. 2013. http://www.healthypeople.gov/2020/topics-objectives/topic/mental-health-and-mental-disorders/. Accessed April 11, 2015.
8. Kamal A, Rahman W, Laila L, Hakim N. Case report on pseudocyesis. *J Armed Forces Med Coll. Bangladesh*. 2012;8(1):56-68.
9. King TL, Brucker MC, Kriebs JM, Fahey JO, Gegor CL, Varney H. *Varney's Midwifery. 5th ed*. Burlington, Mass: Jones & Bartlett Learning; 2015.
10. Cunningham FG, Leveno KJ, Bloom SL, et al. *Williams Obstetrics*. 24th ed. New York: McGraw-Hill Medical; 2014.

11. Yeh Y-W, Kuo S-C, Chen C-Y. Urinary tract infection complicated by urine retention presenting as pseudocyesis in a schizophrenic patient. *Gen Hosp Psychiatry*. 2012;34(1):101.e9-101.e10.
12. Dudek D, Sobański JA. Mental disorders in somatic diseases: psychopathology and treatment. *Polskie Archiwum Medycyny Wewnętrznej*. 2012;122(12):624-629.
13. The Practice Committee of the American Society for Reproductive Medicine. Diagnostic evaluation of the infertile female: a committee opinion. *Fertil Steril*. 2012;98(2):302-307.
14. Del Pizzo J, Posey-Bahar L, Jimenez R. Pseudocyesis in a teenager with bipolar disorder. *Clin Pediatr*. 2011;50(2):169-171.
15. Seeman MV. Antipsychotic-induced amenorrhea. *J Ment Health*. 2011;20(5):484-491.
16. Sherwood L. *Human Physiology: From Cells to Systems. 7th ed*. Belmont, Calif: Brooks/Cole, Cengage Learning; 2010.

Stephanie J. Campos, BSN, DNP. She may be contacted at stephanie.campos@yahoo.com. *Denise Link, PhD, WHNP, FAAN is a Clinical Professor at Arizona State University College of Nursing and Health Innovation, Phoenix, AZ.* *In compliance with national ethical guidelines, the authors report no relationships with business or industry that would pose a conflict of interest.*

1555-4155/16/$ see front matter

http://dx.doi.org/10.1016/j.nurpra.2016.03.009

The activity is approved for 0.7 contact hour(s) of continuing education by the American Association of Nurse Practitioners (AANP). Program ID 16052192. This activity was planned in accordance with AANP CE Standards and Policies. AANP members may receive credit by completing the online posttest and evaluation at cecenter.aanp.org/program?area=JNP.