



OBJECTIVE

Alberta clinicians optimize laboratory testing for investigation of suspected galactorrhea

TARGET POPULATION

Patients with non-puerperal secretions of milk

EXCLUSIONS

None

RECOMMENDATIONS

- ✓ Evaluate secretions during breast examination
- ✓ Repeat testing if equivocal prolactin results
- ✓ Measure prolactin level at least one hour after a breast examination as breast trauma or manipulation can affect prolactin levels
- ✓ Refer to algorithm ([Appendix A](#)) for diagnostic options

BACKGROUND

Any type of nipple discharge should not be assumed to be galactorrhea.¹ Galactorrhea is defined as the non-puerperal secretion of milk and can be confirmed if necessary by visualizing fat droplets in secretions using low power microscopy.²

Galactorrhea is rarely seen in intrinsic breast diseases, which are usually associated with purulent, clear, yellow (serous) multicoloured or sanguinous discharge.^{1,2}

Galactorrhea is much more common in women than in men. In women it may be physiological but in men it is always pathological. Isolated galactorrhea, with normal menses and normal serum prolactin levels, has been estimated to occur in up to 20% of women at some point in their lives.³ Lactation depends on prolactin stimulation of an estrogen-primed breast and may be physiological due to peaks of prolactin secondary to episodic secretion, cyclic menstrual hormonal variations, pregnancy, a post-lactational state, and many other influencing factors such as sleep, exercise, stress or high protein meals.^{2,4} Pathological causes include most commonly pituitary tumours and drugs, and less commonly primary hypothyroidism, chronic renal failure or hepatic disease, and neurogenic stimulation from breast manipulation and chest wall lesions.^{1,2,5}

For women who are hyperprolactinemic, the incidence of galactorrhea is 30 to 80% of cases, depending on galactorrhea and estrogen status.⁶⁻¹⁰ Hyperprolactinemia is found in one-third of women with amenorrhea, and in 75% of women who have both amenorrhea and galactorrhea.⁶ Thus, measuring serum prolactin levels is indicated in all cases of galactorrhea.

Incidental pituitary adenomas are found by MRI scanning in 10% of the normal population and the prevalence of microadenomas (<1cm diameter) in autopsy series varies from nine to 17%.¹¹⁻¹⁵ About 40% of microadenomas are prolactin secreting.^{5,11-13} However, many other pituitary lesions may

mimic these radiological findings, indicating that an elevated prolactin level coincident with a pituitary lesion does not always imply a prolactinoma is present.¹⁶⁻¹⁸

CT and particularly MRI have sensitivities of 50 to 90% for detecting microadenomas including prolactinomas.¹⁹⁻²⁵ Unselected series of patients presenting with galactorrhea or amenorrhea/galactorrhea have not been assessed using CT or MRI imaging to more precisely define the incidence of hyperprolactinemia and prolactinomas. Approximately 16% of patients with “idiopathic” hyperprolactinemia (negative imaging and no other apparent cause) will develop evidence of microadenomas in follow-up.⁵

REFERENCES

1. Fiorica JV. Nipple discharge. *Obstet Gynecol Clin North Am.* 1994;21:453-60.
2. Edge D, Segatore M. Assessment and management of galactorrhea. 1993;18:35-49.
3. Eastman RC. Acromegaly, hyperprolactinemia, gonadotropin-secreting tumors, and hypopituitarism. In Moore WT. and Eastman RC. *Diagnostic Endocrinology*, 1990;33-56.
4. Birkenfeld A, Kase NG. Functional anatomy and physiology of the female breast. *Obstet Gynecol Clin North Am.* 1994;21:433-44.
5. Molitch ME. Pathologic hyperprolactinemia. *Endocrinol Metab Clin North Am.* 1992;21:877-901.
6. Schlechte J, Sherman B, Halmi N, et al. Prolactin secreting pituitary tumours in amenorrhic women: a comprehensive study. *Endocr Rev.* 1980;1:295-308.
7. Vance ML, Thorner MO. Prolactinomas. *Endocrinol Metab Clin North Am.* 1987; 16:731-53.
8. Franks S, Nabarro JDN, Jacobs HS. Prevalence and presentation of hyperprolactinemia in patients with ‘functionless’ pituitary tumors. *Lancet.* 1977;1:778-80.
9. Nabarro JDN. Pituitary prolactinomas. *Clin Endocrinol.* 1982;17:129-55.
10. Thorner MO, McNeilly AS, Hagen C, Besser GM. Long term treatment of galactorrhea and hypogonadism with bromocryptine. *BMJ.* 1974;2: 419-22.
11. Hall WA, Luciano MG, Doppman JL, et al. Pituitary magnetic resonance imaging in normal human volunteers: occult adenomas in the general population. *Ann Intern Med.* 1994;120:817-20.
12. Molitch ME, Russel EJ. The pituitary “incidentaloma”. *Ann Intern Med.* 1990;112:925-31.
13. Molitch ME. Evaluation and treatment of the patients with a pituitary incidentaloma. *J Clin Endocrinol Metab.* 1995;80:3-6.
14. Carr BR. Disorders of the ovary and female reproductive tract. In: *Williams Textbook of Endocrinology*, 8th ed. Wilson JD, Foster DE, Saunders WB (eds). Philadelphia, 1992:733-98.
15. Burrow GN, Worzman G, Rewcastle N, et al. Microadenomas of the pituitary and abnormal sellar tomograms in an unselected autopsy series. *New Eng J Med.* 1981;304:156-8.
16. Post KD, McCormick PC, Bello JA. Differential diagnosis of pituitary tumors. *Endocrinol Metab Clin North Am.* 1987 Sep;16:609-15.
17. Chambers EF, Turski PA, LaMasters D, Newton TH. Regions of low density in the contrast enhanced pituitary gland: normal and pathological processes. *Radiology.* 1982;144:109-13.

18. Kaufman B, Arafah B, Selman WR. Advances in neuroradiologic imaging of pituitary gland: changing concepts. *J Lab Clin Med.* 1987;109:308-19.
19. Dwyer AJ, Frank JA, Doppman JL, et al. Pituitary adenomas in patients with Cushing's disease: initial experience with Gd-DTPA-enhanced MR imaging. *Radiology.* 1987;163:421-6.
20. Johnson MR, Hoare RD, Cox T, et al. The evaluation of patients with suspected pituitary microadenoma: a computer tomography compared to magnetic resonance imaging. *Clin Endocrinol (Oxf).* 1992;36:335-8.
21. Escourolle H, Abecassis JP, Bertagna X, et al. Comparison of computerized tomography and magnetic resonance imaging of the pituitary gland in patients with Cushing's disease. *Clin Endocrinol (Oxf).* 1993;39:307-13.
22. Korogi Y, Takahashi M. Current concepts of imaging in patients with pituitary/hypothalamic dysfunction. *Seminars in Ultrasound, CT and MRI.* 1995;16:270-8.
23. Stadnyk T, Spruyt D, vanBinst A, et al. Pituitary microadenomas: diagnosis with dynamic serial CT, conventional CT and T1-weighted MR imaging before and after injection of gonadolinium. *Eur J Radiol.* 1994;18:191-8.
24. Girard N, Brue T, Chabert-Orsini V, et al. 3D-Ft- thin sections MRI of prolactin-secreting pituitary microadenomas. *Neuroradiology.* 1994 Jul;36(5):376-9.
25. deHerder WW, Lambers SWJ. Imaging of pituitary tumours. *Balliere's Clinical Endocrinology and Metabolism.* 1995;9:367-89.

SUGGESTED CITATION

Toward Optimized Practice (TOP) Endocrine Working Group. 2008 January. Laboratory endocrine testing: Galactorrhea clinical practice guideline. Edmonton, AB: Toward Optimized Practice. Available from: <http://www.topalbertadoctors.org>

For more information see www.topalbertadoctors.org

GUIDELINE COMMITTEE

The committee consisted of representatives of family medicine, general medicine, medical biochemistry, pathology, internal medicine, endocrinology, laboratory technologists and the public.

April 1998

Reviewed January 2008

Reviewed May 2014

APPENDIX A

Algorithm: Investigation of Galactorrhea

