

Provincial Child & Adolescent (≤18 years of age) Ovarian Cyst Primary Care Clinical Pathway

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Background: There are many types of ovarian cysts that can occur in pediatric populations. There are two possible points of entry for this clinical pathway: **A.** Patient may present with clinical symptoms, or **B.** Cyst may be an incidental finding during pelvic imaging or exam.

Information about use of the pathway and nuances in referral processes can be found in the box on Page 2

Entry Point A: Clinical Presentation

1. History

- Abdominal/pelvic pain
- Sexual history
- Menstrual history: Has patient started menstruating?

2. Assessment

- Vitals
- Abdominal exam

Entry Point B: Incidental Finding

Ovarian cysts in children and adolescents are typically asymptomatic and can be an incidental finding during pelvic imaging or abdominal exam (or pelvic exam-not typically indicated in this age group).

- Ultrasound report with description of cyst and size.

Proceed to #6: Management

3. Red Flags

Signs of ovarian torsion:

- Sudden onset of abdominal pain with **nausea and/or vomiting**
- Rebound or guarding

If any present

Send patient to nearest ER with ultrasound capability.

- Ultrasound will be done to look for variation in size of ovaries and to assess for absent doppler flow to ovary to assess for ovarian torsion.

If not present

4. Investigations

- Order pelvic ultrasound (not transvaginal)
 - Ultrasound report with description of cyst and size
- CBC
- Postmenarchal: Do urine HCG & consider first catch urine for STI testing

5. Red Flags

- All premenarchal
- Postmenarchal:
 - Large abdominal mass palpable on examination, confirmed to be ovarian by ultrasound
 - Complex cystic with areas of solid and cystic, and solid masses present risk for malignancy

If present

Refer **urgently** to Pediatric and Adolescent Gynecology (PAG) on call in Calgary Zone, Gynecologist/ Pediatric surgeon on call in Edmonton Zone or local equivalent.

- Consider ordering tumor markers concurrently with referral (LDH, αFP, BHCG, Ca125).

Positive tumor markers

6. Management of non-palpable mass in postmenarchal populations

Simple cyst ≤ 10 cm **OR** Complex cyst ≤ 5 cm

- Typically asymptomatic
- Pain relieved with OTC medications
- Provide education and reassurance

Simple cyst > 10 cm **OR** Complex cyst > 5 cm

- Minimal pain or asymptomatic
- Order tumor markers (LDH, αFP, BHCG, Ca125) if the cyst is complex or solid as these present the greatest risk of malignancy

Discuss symptoms of ovarian torsion (sudden onset, intermittent, unilateral pain associated with nausea and vomiting). If symptoms of torsion develop, direct to visit ER.

Repeat ultrasound in 6-8 weeks

- If asymptomatic, simple cyst and ≤ 5 cm, may not require repeat imaging.

Normal ultrasound:
Functional cyst

Cyst unchanged or increased in size

Refer to Pediatric and Adolescent Gynecology (PAG) or gynecology clinic



This primary care pathway was co-designed provincially by Primary Care Providers, Specialist Physicians (Pediatric and Adolescent Gynecology, General Surgery), and the Provincial Pathways Unit. It is intended to be used in conjunction with specialty advice services, when required, to support care within the medical home.

EXPANDED DETAILS

Pathway Primer

An adnexal mass is a cystic or solid mass that originates in the structures of the adnexa (includes ovaries, fallopian tubes, and surrounding tissue). Availability and use of ultrasounds within pediatric populations has led to an increase in the number of ovarian cysts detected [1], the majority of which are benign and physiologic and need no further management. This pathway aims to provide a standardized, evidence-based, easy-to-use algorithm for identifying and managing ovarian cysts in pediatric populations. It is intended to help identify those patients at risk of complications, indicate what investigations are recommended, and determine the appropriate course of management and/or referral. Accurate identification of cysts that don't require surgery allows for a greater element of fertility preservation.

Whether or not the patient has achieved menarche is a critical distinction for the management of ovarian cysts.

Premenarchal: Ovarian cysts in children who have not yet started menses are concerning as these cysts would not be related to the development of a follicle during a menstrual cycle. These patients need to be referred urgently to specialty care.

Postmenarchal: Finding an ovarian cyst is more common in adolescence than in any other stage of development age due to increased hormonal activity during puberty [1]. Following the onset of adolescence, ovarian cyst frequency increases with age, with peak frequency around 15 years of age [1]. Most ovarian cysts in postmenarchal patients are asymptomatic functional cysts that are small in size (1-3 cm) and related to ovulation. These cysts typically present as an incidental finding on ultrasound scan and often regress without treatment. However, it is important to consider and rule out other diagnoses promptly. Management aims to be conservative through observation and resolution of symptoms and prevention of complications [2] [3]. Ovarian cysts in adolescent populations can sometimes grow to larger sizes (8-12% incidence) and infrequently may present complications by becoming ruptured or causing ovarian torsion [1]. For further information see type of cysts in [Management section](#) of pathway.

Note: Guidance in this pathway applies to the care of children and adolescents with ovarian cysts. In Alberta, the definition of pediatrics is those who are 18 years of age and younger. However, based on age of presentation, local context, and services available, this pathway could be applied to young adults up to 21 years of age. Similarly, referral points may differ (e.g., pediatric versus adult gynecology, or in some situations pediatric general surgery) based on patient age, development and local services available. This pathway attempts to reflect care in the present day within Alberta.

Entry Point A: Clinical Presentation (pain)

1. History

Menstrual history:

- Assess whether the patient has begun menstruation.
 - Premenarchal: Cysts are not related to the development of a follicle during a menstrual cycle and are concerning.
 - Postmenarchal: In those who have started menses, most ovarian cysts are benign functional cysts but a comprehensive assessment and investigation is required. The vast majority of ovarian masses in adolescents are benign.
 - In many clinical settings, age ≥ 12 years is often used as an arbitrary cut-off for pre- and postpubertal but it is best practice to assess whether menstruation has begun as this hallmark of development is critical for appropriate care.
- Irregular vaginal bleeding is not a typical symptom of ovarian cysts in pediatric/adolescent populations. See [Adolescent Abnormal Uterine Bleeding Primary Care Pathway](#) for additional guidance.

Abdominal/pelvic pain:

- When any pediatric patient presents in acute pain, the differential diagnoses should include other causes of acute pain, such as appendicitis, ectopic pregnancy, Mullerian anomalies and pelvic inflammatory disease. Clinical evaluation and history are key to distinguishing acute torsion from other causes of acute abdomen.
- Most functional cysts (postmenarchal) are asymptomatic or can present with cyclical abdominal pain at the time of ovulation. If pain is present, it is typically short lived.

Sexual history: Obtain sexual history in a confidential manner and explain situations that would require mandatory reporting. Conversations about sexual history should be tailored to the patient's age and developmental level.

- If abuse is suspected, call child intervention 24/7 at 1-800-638-0715. If there is immediate danger, call 911.
- **Clinical pearl:** [HEADSSS Assessment](#) is a tool that can be used to support the assessment of an adolescent patient and includes **H**ome, **E**ducation/**E**mployment, **A**ctivities, **D**rugs, **S**ex and relationships, **S**elf harm and depression, **S**afety and abuse. This is an opportunity for education.

2. Assessment

- **Vitals:** Temperature, blood pressure and heart rate.
- **Abdominal exam:** Assess for pain, rebounding or guarding and the presence of a palpable mass.

Clinical pearl: Polycystic Ovary Syndrome (PCOS) in the adolescent is difficult to diagnosis as some PCOS features (e.g., multicystic ovaries, irregular periods, acne) are normal and common in this population. See [Provincial Polycystic Ovary Syndrome \(PCOS\) Primary Care Clinical Pathway](#) (adults and adolescents three years post-menarche) if additional information about PCOS is needed.

3. Red Flags

Ovarian torsion occurs with partial or complete rotation of the ovary onto its supporting ligaments which cuts off its blood supply. The main risk factor for ovarian torsion is the presence of an ovarian cyst (> 5 cms) of which most are benign. Other risk factors include being over 20 years of age, previous ovarian torsion, and pregnancy [4]. Early diagnosis and intervention are key to protect ovarian function [5].

Signs of Ovarian Torsion:

- **Sudden onset of abdominal pain with nausea and/or vomiting:** The most common clinical symptom of torsion is sudden-onset abdominal pain that is non-radiating, and associated with nausea and vomiting, in the absence of signs of infection [5] [6]. Conversely, mild or no pain does not fit the picture of torsion regardless of ultrasound findings. If no nausea/vomiting, it is less likely to be torsion.
- **Rebound or guarding**

Response: Send patient to nearest ER with ultrasound capability. An ultrasound showing lack of blood flow to the ovary and variance in volume of the ovaries are suggestive of torsion, but this must be applied to the clinical picture.

4. Investigations

- **Order pelvic ultrasound:** Ultrasound is the initial radiological investigation of choice and is very good at characterizing cysts. Urgency will depend on the amount of pain that the patient is experiencing.
 - **Ultrasound report:** The size and description of the cyst can help identify the type of cyst. Hemorrhagic cysts or cysts filled with blood have a typical character on ultrasound and are typically related to ovulation.
- **CBC:** To help rule out differential diagnoses.
- **Urine HCG and consider first catch urine:** In patients who have achieved menarche, do a urine HCG at point of care and consider a first catch urine for STI testing to help rule out other differential diagnoses. The decision for first catch urine and STI testing should be based on history and assessment.
 - If urine HCG is positive, ectopic pregnancy needs to be considered.
 - If STI testing is positive, see the [Alberta Treatment Guidelines for Sexually Transmitted Infections \(STI\) in Adolescents and Adults](#).
 - Return to the [HEADSSS assessment](#) and [mandatory reporting if abuse is suspected](#).

5. Red Flags

Premenarchal: Any ovarian cyst in a child who has not yet achieved menarche, should be considered suspicious.

Response: **Urgent** referral should be made to Pediatric and Adolescent Gynecology (PAG) on call in Calgary Zone, Gynecologist/Pediatric surgeon on call in Edmonton Zone or local equivalent (e.g., pediatric surgery, general surgery).

- Consider ordering tumor markers concurrently with referral. These include: Lactate Dehydrogenase (LDH), Human Chorionic Gonadotrophin (BHCG) and Alpha-fetoprotein (αFP) and Ca125. The referral should not be delayed ordering tumor markers.

Postmenarchal: Further investigations depend on the size and nature of the cyst. Ultrasound results will help characterize masses into simple cysts (and therefore, likely benign), complex cystic with solid and cystic areas (higher risk), and solid (highest risk) masses.

- If ultrasound shows a complex solid and cystic mass, these are most likely germ cell tumors in patients under 18 years of age.
- Size has not been definitively shown to be a reliable predictor of malignancy.

Response: If the cyst has concerning features and/or is palpable on examination, refer **urgently** to Pediatric and Adolescent Gynecology (PAG) on call in Calgary Zone, Gynecologist/Pediatric surgeon on call in Edmonton Zone or local equivalent (e.g., pediatric surgery, general surgery).

- Consider ordering tumor markers concurrently with referral. These include: Lactate Dehydrogenase (LDH), Human Chorionic Gonadotrophin (BHCG) and Alpha-fetoprotein (α FP) and Ca125. The referral should not be delayed ordering tumor markers.

Entry Point B: Incidental Finding (no pain)

Incidental finding on ultrasound (no pain) or abdominal exam (or pelvic exam-not typically indicated in this age group): Ovarian cysts in the adolescent are typically asymptomatic and present as an incidental finding on ultrasound or during an abdominal exam.

6. Management

The management section applies to **postmenarchal patients** without palpable masses. The management of presumed benign ovarian masses is dependent on the presentation and severity of symptoms, as well as the ultrasound findings.

Ovarian cysts can be *simple or complex* [2]. Simple cysts are also known as functional cysts, physiological cysts, and benign cysts [7].

Simple Ovarian Cysts	Complex Ovarian Cysts
<ul style="list-style-type: none">- unilocular and fluid filled- no septations, solid areas or other features- often a normal physiological finding that occurs due to menstrual cycle	<ul style="list-style-type: none">- can be multilocular and may contain solid areas- examples include mucinous and serous cystadenomas and dermoid cysts (mature teratomas)- can have features suspicious of malignancy

The summary statements in the SOGC guideline (no. 404) [8] note that the following ovarian masses typically demonstrate benign features on ultrasound:

- Simple or unilocular cysts (functional cysts): These are the most common type of cyst and typically occur when an egg is produced with every menstrual cycle.
- Ovulation cyst (hemorrhagic corpus luteal cyst): These cysts occur naturally as follicles develop and are considered a normal finding on ultrasound. These can be large (up to 10 cms) but are typically, 3-4 cms in size. These cysts do not necessarily cause pain and are often an incidental finding with ultrasound or exam. Patients with these cysts may present with pain because blood has been ovulated into the abdominal cavity, or a hematoma has occurred on the ovary. The appearance of these cysts is timed with ovulation (2 weeks before a period), and cause symptoms that are like appendicitis. Pain management medications and strategies can be offered while the cyst resolves.

- Endometriomas: Endometriomas are very uncommon in adolescents unless they are associated with an obstructive Mullerian anomaly.
- Dermoids (Mature cystic teratomas): Do not resolve between ultrasounds. Make up the majority of complex cysts and have very typical features on ultrasound.

Simple cyst ≤ 10 cm OR Complex cyst ≤ 5 cm

- Typically asymptomatic
- Pain is usually resolved with OTC pain medications

Simple cysts ≤ 10 cm and hemorrhagic cysts ≤ 5 cm are typically corpus luteal cysts, or functional cysts. Endometriomas are very uncommon in adolescents unless they are associated with an obstructive Mullerian anomaly. Obstructed non-communicating Mullerian anomalies, such as a non-communicating horn or cervical agenesis can mimic endometriomas.

Ovarian masses which are > 5 cm are at increased risk of torsion. However, ovarian masses related to ovulation, corpus luteal cysts and follicular cysts, can be up to 10 cm and will resolve spontaneously. Larger cysts can cause pain and pressure.

Although smaller cysts are at lower risk for torsion, education about the signs of torsion to watch for (e.g., sudden onset, intermittent, unilateral pain associated with nausea and vomiting) should be discussed with patients and caregivers (age and developmental level dependent). Guidance should be provided to present to the ER if ovarian torsion is suspected.

Follow-up: Asymptomatic masses characterized as being benign can be followed by a repeat ultrasound in 6-8 weeks. If the cyst has resolved, the cyst is confirmed as a functional cyst and no further follow-up is needed. Provide reassurance and education. Cysts that persist in size or grow are unlikely to be functional and patients should be referred to pediatric gynecologist or gynecologist to discuss on-going management [9].

Note: If asymptomatic, simple cyst and ≤ 5 cm, repeat imaging may not be required.

Note: Hormonal treatments do not provide an advantage over expectant management in the resolution of benign ovarian cysts. Oral contraceptive pill (OCP) can be considered in recurring ovulation cysts that are symptomatic as hormonal contraceptives may help suppress the development of new cysts [3].





Simple cyst > 10 cm OR Complex cyst > 5 cm

- Sinister features include size > 10 cm and multicystic or solid with raised tumor markers or endocrinological findings such as clinical findings of elevated testosterone.
 - If tumor markers are positive, refer urgently to Pediatric and Adolescent Gynecology (PAG) on call in Calgary Zone, Gynecologist on call in Edmonton Zone or local equivalent (e.g., pediatric surgery, general surgery).
 - If tumor markers are negative, Patients should be referred to pediatric gynecologist or gynecologist, as patients with these large cysts will need further follow-up.
 - The urgency with which specialty care completes follow-up may depend on the characteristics of the cyst.
- Cysts that are > 5 cm are at increased risk of torsion. Discuss symptoms of ovarian torsion with caregivers (sudden onset, intermittent, unilateral pain associated with nausea and vomiting) for their awareness. Guidance should be provided to present to the ER if ovarian torsion is suspected.

Surgery

- The decision for surgery must be balanced against the risks of surgery including infections and disruption of the ovary and risk for subsequent fertility versus the risk for torsion and malignancy in larger cysts.
- Laparoscopy is the typical surgical modality for persistent or large ovarian cysts, but very large cysts can also be managed with a small mini laparotomy with drainage of the cyst and removal of the cyst and preservation of the ovary, preventing large debilitating incisions for benign lesions.
- Rarely congenital absence of the suspensory ligament of the ovary or an unusually lax or long ligament can predispose to torsion. Repetitive torsion can require pexy of the ovarian ligaments. At the time of surgery simple detorsion with second delayed cystectomy has shown improve outcomes in ovarian viability and follicular development post-op [5].

Advice Options

Zone	Program	Online Request	Phone Number
Urgent Telephone			
All Zones	RAAPID 	N/A	North: 1-800-282-9911 or 780-735-0811 South: 1-800-661-1700 or 403-944-4486
Non-Urgent Electronic			
All Zones	Netcare eReferral 		N/A
Non-Urgent Telephone			
Calgary	Specialist Link 	Online Request	403-910-2551
Edmonton, North	ConnectMD 	Online Request	1-844-633-2263

You can request non-urgent advice at any point when uncertain about medications, next steps in treatment, imaging or resources available.

Referral Process

Referring providers can access the [Alberta Referral Directory](#) for available resources and referral information.

- For **Urgent Referral** – Call specialist on call via [RAAPID](#) or call 911.

BACKGROUND

About this pathway

- Work on this pathway was initiated under the auspices of the Calgary Business Unit by a family physician specialist (Dr. Monica Sargious) and a pediatric and adolescent gynecologist (Dr. Philippa Brain). In May 2025, the draft pathway was reviewed and revised by a multi-disciplinary team who worked to finalize the co-design of provincial primary care clinical pathway for use in Alberta. This pathway was developed in collaboration with pediatric and adolescent gynecologists, primary care providers, and the Primary Care Alberta Provincial Pathways Unit (PPU).
- Condition-specific clinical pathways are intended to offer evidence-based guidance to support primary care providers in caring for patients with a range of clinical conditions.

Authors and conflict of interest declaration

The authors represent a multi-disciplinary team. Names of the content creators and their conflict-of-interest declarations are available on request by emailing AlbertaPathways@primarycarealberta.ca.

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Pathway review process, timelines

Primary care pathways undergo scheduled review every three years or earlier if there is a clinically significant change in knowledge or practice. The next scheduled review is September 2028. However, we welcome feedback at any time. Please send us your [feedback here](#).

DISCLAIMER

This pathway represents evidence-based best practice but does not override the individual responsibility of healthcare professionals to make decisions appropriate to their patients using their own clinical judgment given their patients' specific clinical conditions, in consultation with patients/alternate decision makers. The pathway is not a substitute for clinical judgment or advice of a qualified healthcare professional. It is expected that all users will seek advice of other appropriately qualified and regulated healthcare providers with any issues transcending their specific knowledge, scope of regulated practice or professional competence.

PROVIDER RESOURCES

Resource	Link
British Society for Paediatric & Adolescent Gynaecology: Guideline for the management of ovarian cysts in children and adolescent	Ovarian-cyst-management-in-PAG-guideline.pdf
SOGC Clinical Practice Guideline: Diagnosis and Management of Adnexal Torsion in Children, Adolescents and Adults	No. 341-Diagnosis and Management of Adnexal Torsion in Children, Adolescents, and Adults - Journal of Obstetrics and Gynaecology Canada
SOGC Clinical Practice Guideline (Adult): Initial Investigation and Management of Benign Ovarian Masses	Guideline No. 404: Initial Investigation and Management of Benign Ovarian Masses - Journal of Obstetrics and Gynaecology Canada
Joint GOC/SOGC Clinical Practice Guideline (Adult): Initial Investigation and Management of Adnexal Masses	Guideline No. 403: Initial Investigation and Management of Adnexal Masses - Journal of Obstetrics and Gynaecology Canada
Australian Family Physician (Adult): Investigation and Management of an Ovarian Mass	RACGP - Investigation and management of an ovarian mass
TeachMe Paediatrics: HEADSSS Assessment	HEADSSS Assessment - TeachMePaediatrics - Home - Education
Government of Alberta: Get Help for child abuse, neglect and sexual exploitation.	Get help for child abuse, neglect and sexual exploitation Alberta.ca

PATIENT RESOURCES

Resource	Link
MyHealth Alberta: Functional Ovarian Cysts in Teens	Functional Ovarian Cysts in Teens: Care Instructions

REFERENCES

- [1] H. Emeksiz, O. Derinöz, E. Akkoyun, F. Pınarlı and A. Bideci, "Age-Specific Frequencies and Characteristics of Ovarian Cysts in Children and Adolescents," *J Clin Res Pediatr Endocrinol*, vol. 9, no. 1, pp. 58-62, 2017.
- [2] J. Ritchie, F. O'Mahony and A. (. b. o. B. S. f. P. & A. G. Garden, "Guideline for the Management of Ovarian Cysts in Children and Adolescents," June 2017. [Online]. Available: <https://britspag.org/wp-content/uploads/2024/05/Ovarian-cyst-management-in-PAG-guideline.pdf>. [Accessed 25 April 2025].
- [3] Y. Kirkham, J. Lacy, S. Kives and L. Allen, "Characteristics and Management of Adnexal Masses in a Canadian Pediatric and Adolescent Population," *J Obstet Gynaecol Can*, vol. 33, no. 9, pp. 935-943, 2011.
- [4] DynaMed, "Adnexal Mass in Children and Adolescents," EBSCO Industries, Inc., 11 April 2024. [Online]. Available: www.dynamed.com/condition/adnexal-mass-in-children-and-adolescents. [Accessed 24 April 2025].
- [5] S. Kives, S. Gascon, E. Dubuc and N. Van Eyk, "SOGC Clinical Practice Guideline: No. 341-Diagnosis and Management of Adenaxal Torsion in Children, Adolescents, and Adults," *Journal of Obstetrics and Gynecology*, vol. 39, no. 2, pp. 82-90, 2017.
- [6] ACOG Committee , "Opinion No. 783: Adnexal Torsion in Adolescents," *Obstetrics and Gynecology*, vol. 134, no. 2, pp. e56-e63, 2019.
- [7] B. Ergun-Longmire and D. Greydaus, "Ovarian Tunors in the Pediatric Population: An Update," *Disease-A-Month*, vol. 70, no. 6, pp. 1-17, 2024.
- [8] W. Wolfman, J. Thurston, G. Yeung and P. Glanc, "Guideline No. 404: Initial Investigation and Management of Benign Ovarian Masses," *Journal of Obstetrics and Gyneacology*, vol. 42, no. 8, pp. 1040-1050, 2020.
- [9] A. Patwardhan, "Ovarian Mass in Paediatric and Adolescents," University Hospitals of Leicester (NHS Trust), November 2020. [Online]. Available: <https://secure.library.leicestershospitals.nhs.uk/PAGL/Shared%20Documents/Ovarian%20Mass%20in%20Children%20and%20Adolescents%20UHL%20Gynaecology%20Guideline.pdf>. [Accessed 25 April 2025].

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