

Metachronous contralateral pediatric inguinal hernia

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Conflict of interest: None declared

Clinical question: Should routine contralateral inguinal region exploration be done to prevent a metachronous contralateral pediatric inguinal hernia?

Results: The incidence of a metachronous contralateral pediatric inguinal hernia is 6.4% in both genders. Sixteen contralateral groin explorations need to be done to prevent one metachronous contralateral pediatric inguinal hernia.

Implementation:

- Routine exploration of the asymptomatic contralateral groin is not recommended.
- Infants less than one month old with an inguinal hernia should receive immediate specialist referral.
- Older infants and children with a reducible hernia should be referred to the pediatric surgical outpatient department.
- Pediatric patients with an original left-sided hernia or who were less than six months old at the time of the first hernia repair should receive regular follow-up in the primary health care setting.

Keywords: metachronous contralateral pediatric inguinal hernia, exploration

Metachronous contralateral pediatric inguinal hernia

Definition: A metachronous contralateral inguinal hernia (MCIH) is one that develops in a previously asymptomatic groin in a pediatric patient who has undergone surgery for a unilateral inguinal hernia in the past.

Incidence: Pediatric unilateral inguinal herniotomy is one of the most common operations that pediatric surgeons perform.¹ The incidence of the development of a metachronous hernia varies from 2.1 to 31% in the literature.^{2,3} The routine exploration of the asymptomatic side in a unilateral inguinal herniotomy is therefore controversial. Benefits include prevention of a further anesthetic in the future, any complications associated with an untreated inguinal hernia such as incarceration, and the risks associated with another procedure. The disadvantages include iatrogenic injury, testicular ascent secondary to inguinal adhesions, increased anesthetic times, and an unnecessary operation in a pediatric patient.

Economics: There is no published study that addresses the economic issues surrounding a MCIH. There may be a possible economic benefit to exploration of the contralateral asymptomatic inguinal region, because this would prevent a future admission, operation, and also a general anesthetic.

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Level of evidence: Systematic review, prospective nonrandomized trials, and retrospective cohort studies.

Search sources: Pubmed, Cochrane Library, ClinicalTrials.gov, Sciencedirect, IngentaConnect.

Outcomes: The main outcomes are:

1. Incidence of pediatric MCIH.
2. Number of contralateral explorations needed to treat to prevent one inguinal hernia.
3. Identification of at-risk groups.

Consumer summary: A MCIH is the formation of a symptomatic hernia on the opposite side to a previously repaired inguinal hernia. This new hernia is not present at the time of the original operation. There is good evidence that routine exploration of the asymptomatic side is not recommended in children.

The evidence

What is the incidence of a MCIH?

Systematic reviews: 2

Prospective nonrandomized trials: 3

Retrospective reviews: 8

There was one previous systematic review and this found that the incidence of a MCIH was 7.2% in both genders.⁴ The prospective trials demonstrated a large range of MCIH incidence (2.3%–9.3%), as did the retrospective trials (2.1%–7.1%).^{2,5–12} When this evidence was combined in a new systematic review, an incidence of 6.4% in 31,164 pediatric patients was revealed (Table 1).

How many contralateral explorations are needed to prevent a single MCIH?

The previous systematic review found that 14 contralateral explorations were needed to prevent one metachronous hernia. The current systematic review concluded that the numbers needed to treat increased to 16 (95% confidence interval 14.8–16.1).

Are there any other factors affecting the incidence of MCIH?

The current review revealed that the gender of the patient did not influence the incidence of a MCIH (males 6.05% versus females 6.59%; $P = 0.202$). Patients younger than six months old were more likely to develop a MCIH in the future (8.85% versus 7.12%; $P = 0.036$), as were patients who originally presented with a left-sided hernia (9.6% versus 5.42%; $P = 0.0001$) (Table 2).

Conclusions

It is necessary to perform 16 contralateral inguinal explorations to prevent one metachronous hernia. The incidence of a MCIH is 6.4%. This is too low to justify routine contralateral inguinal groin exploration in children due to the potential risks of an unnecessary operation. Infants younger than six months and those with a left-sided hernia originally are at increased risk of developing a MCIH, and therefore should receive a regular review in the primary health care setting.

Table 1 Summary of evidence and meta-analysis

	Year	Type of evidence	Patients (n)	MCIH	(%)
Ron et al ⁴	2007	Systematic review	22035	1597	7.3
Maddox et al ⁵	2007	Prospective nonrandomized trial	222	15	6.8
Kalantari et al ⁶	2009	Prospective nonrandomized trial	301	28	9.3
Tsai et al ⁷	2010	Prospective nonrandomized trial	174	4	2.3
Niedzielski et al ¹⁰	1996	Retrospective study	5095	267	5.2
Marulaiah et al ⁹	2006	Retrospective study	2124	44	2.1
Zamakhshardy et al ⁸	2008	Retrospective study	266	19	7.1
Vogels et al ²	2009	Retrospective study	280	14	5
Jallouli et al ¹²	2009	Retrospective study	164	5	3
Niyogi et al ¹¹	2010	Retrospective study	503	22	4.4
Nataraja and Mahomed	2010	Systematic review	31164	2015	6.4

Abbreviation: MCIH, metachronous contralateral inguinal hernia.

Table 2 Summary of meta-analysis

	MCIH	No MCIH	Patients (n)	MCIH (%)	P value
Males	879	13647	14526	6.05	–
Females	302	4282	4584	6.59	0.202
<6 months	97	999	1096	8.85	–
>6 months	19809	1519	21328	7.12	0.036
Initial right hernia	485	8471	8956	5.42	–
Initial left hernia	416	3915	4331	9.6	0.0001

Abbreviation: MCIH, metachronous contralateral inguinal hernia.

The practice

Potential pitfalls

Parental education of the signs and symptoms of a MCIH should occur with advice to seek medical opinion as soon as there is a concern. Delays in specialist referral with irreducible inguinal hernias could lead to compromise of the vasculature of the incarcerated bowel and a worse outcome.

Management

Pediatric inguinal hernias when identified in the primary health care setting should be referred to a pediatric surgical center for further management.

Assessment

- There should be a swelling present in the inguinal region that may extend to the level of the scrotum.
- This should be reducible, nontender, and have no associated symptoms.
- If the swelling is tender, if erythema is present on the overlying skin, or there are associated symptoms such as vomiting, an immediate specialist referral should be made.
- In the absence of a clinical inguinal hernia, but with a strong parental history, specialist referral should be considered.

Treatment

Immediate specialist referrals:

- Infants under one month of age (even if hernia is reducible) require a same day specialist telephone referral.
- Irreducible inguinal hernias.
- Evidence of associated symptoms, such as altered feeding patterns, pain, irritability, vomiting, or abdominal distension.

Nonurgent specialist referrals:

Reducible hernias in older infants and children may be reviewed in the specialist outpatient department.

Further reading

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