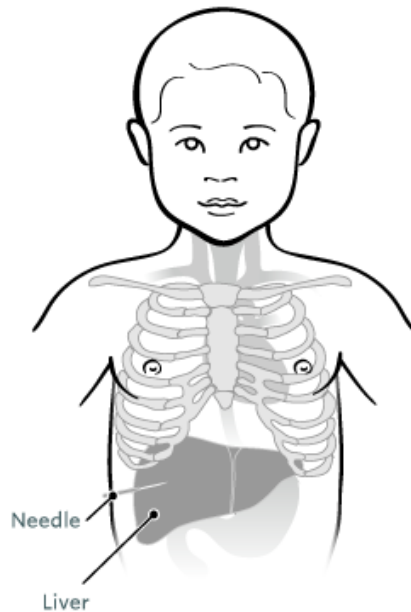


Ultrasound guided liver biopsy is a safe procedure in children: a retrospective review of practice at Starship Child Health

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Starship Child Health



Introduction

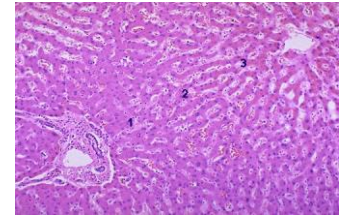
- Why?
- Does the diagnostic benefit outweigh the risk?
- Appropriate pre-operative and post-operative management
- Performance improvement



What do we already know?

- Adult studies

- Mortality rate 0.2%^{1,2}
- Morbidity rate of 5.9 % (60% occur in 2 hours and 96% within 24 hours)³
- Pain is the commonest complication occurring in up to 30%³ (moderate 3% and severe 1.5%)⁴
- Haemorrhage 0.5%⁵



West J, Gastroenterology 2010; 139:1230; Piccinino F et al J Hepatol 1986; Perrault et al Gastroenterology 1978; Gilmore et al Gut 1995;36:437-41; Boyum et al, Mayo Clin Proc 2016; 91:329; Bravo et al NEJM 2001; 344:495

Contraindications

- Absolute contraindications⁶
 - Uncooperative patient
 - INR > 1.5
 - Plt < 60
 - Use of aspirin, NSAIDS or antiplatelets in last 7 -10 days
 - Extrahepatic biliary obstruction

Paediatric studies

- Morbidity - 1-4%^{7,8}
- Bleeding 4.6-25%⁹
 - Focal lesion, LMWH, ALF increased risk
 - Aspirin not a risk factor
- Pain - 0.2%
- Fever - 0.9%
- AV fistula, pneumothorax, organ perforation, bile leaks

Short et al JPGN 2013;57:644-648; Cohen et al Gastro 1992; 102:629-32; Westheim JPGN 2012;55:82-7; Rishi JPGN 2017;65:86-88; Gonzalez-Valina et al JPGN 1993; Bilreiro et al JPGN 2017;65:137-140

AIMS

- Understand complication rates for the paediatric population
- Define the risk factors for complications following US guided percutaneous LB
- Use the information to support a new protocol for management of children undergoing percutaneous liver biopsy at Starship Hospital
- Study the diagnostic yield of biopsies

METHODS

- Retrospective case note review of all liver biopsies Jan 2007- Dec 2017
- Lists of patients acquired from pathology and theatres
- Data collected
 - Patient demographics, length of admission, reasons for biopsy, native or transplant, bloods prior and post, pathology reports, change in clinical management following biopsy
- Risk factors
 - Coagulopathy, anticoagulants, age, weight, sepsis/fever prior to biopsy, abdominal drains
- Complications

RESULTS

		Native Diagnostic (n=373)	Transplant	
			Protocol (n=138)	Diagnostic (n=356)
Age (y)	Median (Range)	4.3 (0.02 to 18.0)	7.2 (1.1 to 17.8)	5.3 (0.3 to 17.2)
Sex	F:M	47:53	56:44	54:46
Ethnicity (%)	European	49	50	38
	Maori	23	34	30
	Pacific	15	8	18
	Asian	10	6	9
	Other	3	1	5
Complications (n)	Bleeding	0	0	3
	Pain	7	1	14
	Fever	1	0	7
	Bacteraemia	0	0	1
	TOTAL	8	1	25

Risk factors

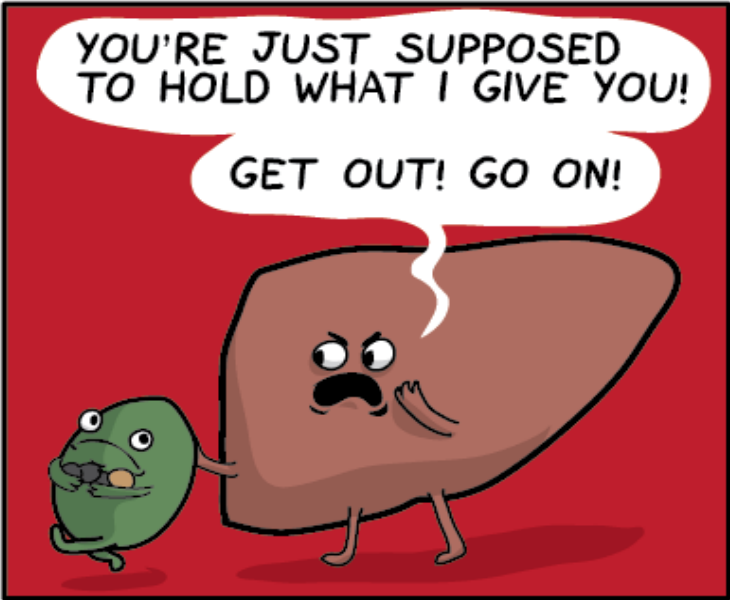
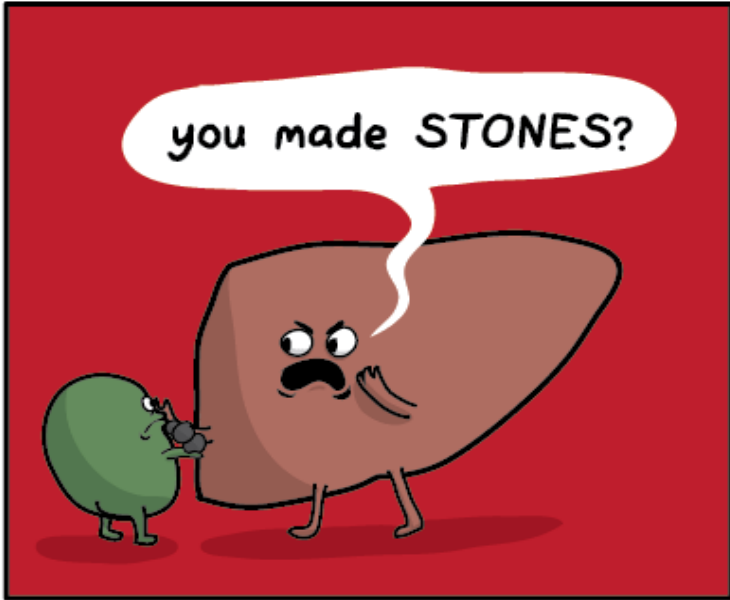
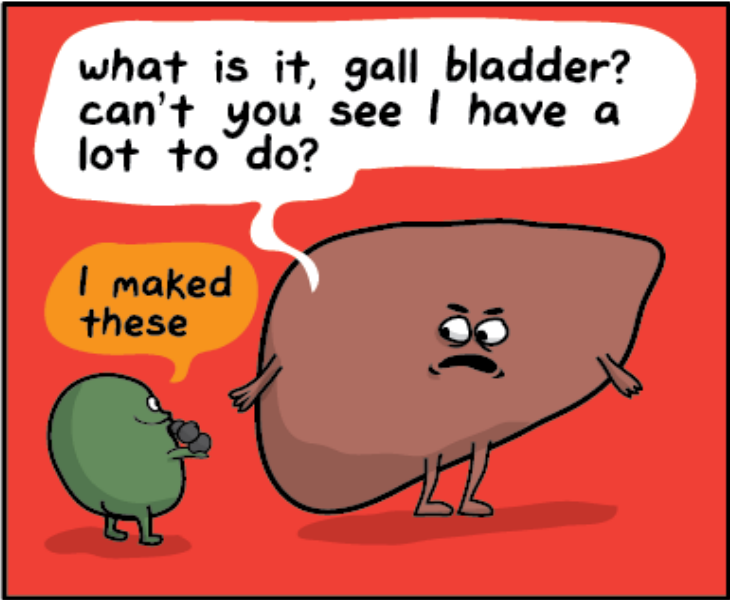
- Percutaneous biliary or abdominal drain
 - Increased rate of fever (4.6% vs 0.6%; $p=0.02$)
- Cholangitis up to 7 days prior to liver biopsy
 - 18% vs 3%; $p<0.0001$
- Transplant patient
- Not significant
 - Fever up to 7 days prior to biopsy
 - Platelets < 70
 - Age $< 1\text{yr}$
 - Weight $< 10\text{kg}$

CONCLUSION

- Ultrasound guided percutaneous liver biopsy is a very safe procedure in children
- Transplanted children have a higher rate of complications
- Factors that increase risk of complications
 - Cholangitis, abdominal drain/PTC

Future Directions

- Development of same day discharge protocol
- Further analysis of results and yield from liver biopsy
- Value of protocol biopsies
 - Risk is low
- Subanalysis of post-biopsy pain
- ? Listen to Helen – 1000 Liver biopsies!



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