

Perforating Injury of Abdomen, Thorax and Neck in a Child with a Bamboo Stick



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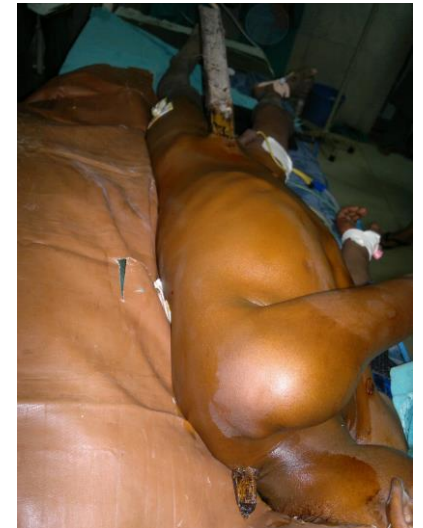


Background

Penetrating or perforating
Abdominal or chest injuries are
uncommon in children and are
associated with a high mortality



Impalement injuries are consequences of penetration
by elongated, usually fixed objects through the body



Thoraco-abdominal impalement is a severe type of penetrating trauma, under-reported; yet an increasing source of worldwide morbidity^{1,2}

Usually associated with visceral and vascular injury, it endangers vital organs and is a risk factor for a poor outcome³

1. Robicsek F, Daugherty HK, Stansfield AV, et al. Massive chest trauma due to impalement. *J Thorac Cardiovasc Surg* 1984; 87:634–6.

2. Chhavi S, D'souza N, Mishra B, Gupta B, Das S. Management of a massive thoracoabdominal impalement: a case report. *Scand J Trauma Resusc Emerg Med* 2009; 17:50.

3. Badri F, Al-Mazrouei A, Azam H, Alamri N. Impalement injury – presentation of two new cases. *Hamdan Medical Journal* 2012; 5:173–178

Challenges

pre-hospital care and rapid transport

Impaling object should be left "*in situ*" until management is started at a tertiary trauma centre⁴

expedite critical, definitive treatments

We report such a case managed at a rural emergency setting in Nepal

We learned

a collaborative trauma team is imperative to a favorable outcome

The case summary

A ten year child with an alleged history of fall from a coconut tree on the bamboo fence and got impaled with a bamboo stick

The child was transferred on an ambulance to the hospital within 3 hours

At the ER

the child was conscious, dehydrated, in pain
was stable, scored 15 GCS

His blood pressure was 90/60 mm Hg
pulse was 100 beats/min
respiratory rate of 26/min

The oxygen saturation level was 86% at room air

Cervical spine : normal

breath sounds absent: left lung

abdomen was tender, with guarding and mild rigidity

A bamboo stick nearly 50 centimeters in length remained impaled in the body

In the left iliac fossa traversing through the whole of left side of body to exit at the neck (zone 1)

The bowel was seen lying alongside with green, foul smelling peritoneal contents

Management started at ER

Police information

Oxygen by mask

IV fluids

III generation Cephalosporin

Analgesics

Nil by mouth

Intercostal tube

Urinary Catheter

Complete laboratory investigations

Radiologic imaging

Blood x matching

Consent for exploration

Preoperative film



The Computed Scan images



Operation

Abdomen

approximately 50 cm long bamboo stick penetrated the anterior abdominal wall at left iliac fossa injuring the colon, transected the jejunum at two sites 45 cm from the duodeno-jejunal flexure

The bamboo stick penetrated the fundus of stomach, and through the diaphragm in to chest



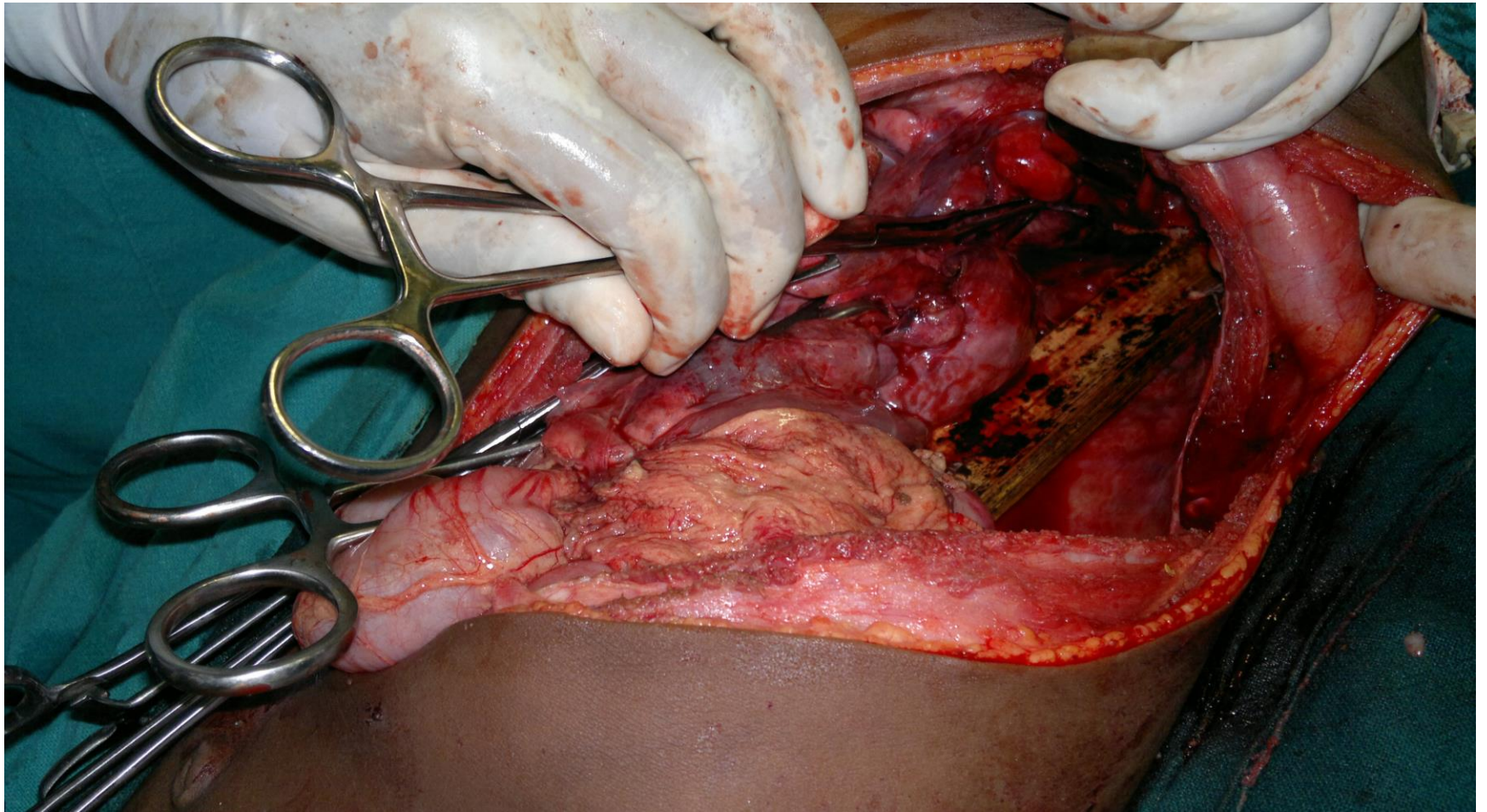
Thorax

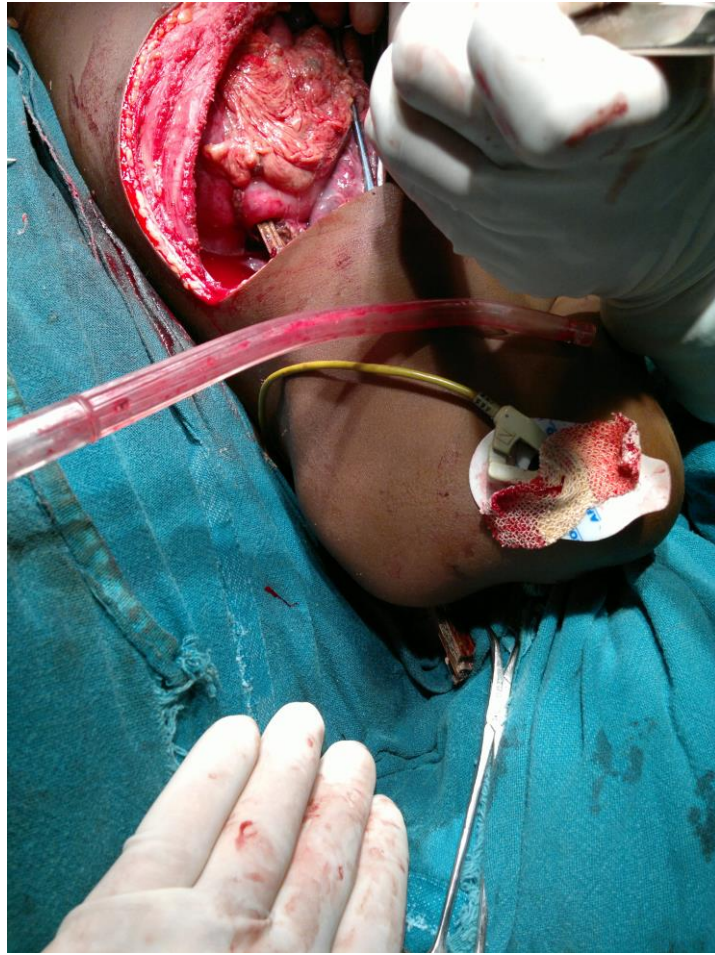
the object had transected the left lower lobe lacerating the upper lobe, exited out through posterior triangle zone 1

Great vessels were spared, except for gross contamination due to gastrointestinal contents

video presentation

thorax and abdomen





Operative findings

AAST organ injury scales

AAST Grade

Lung

II

Diaphragm

II

Stomach

II

Small bowel

IV

Large bowel

I

lung and small bowel



the bamboo stick





Post operative chest film



recovery



discussion

Trauma continues to be a leading cause of mortality worldwide
developing countries are especially prone to trauma-related deaths

Limitations

inadequate pre-hospital services
comprehensive emergency medicine protocols
surgical resources including both personnel and functional updated equipment

principles of triage, resuscitation, and emergency care are universal for all
trauma patients

each impalement injury is unique

it carries the additional risks of super-infection
prolonged recovery time

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at hospital, urgent therapeutic measures

Primary Trauma Care (PTC)

Advanced Trauma Life Support (ATLS)

the trauma staff must assess, routine resuscitation and stabilization and need to prevent additional injury

Patients surviving thoracic impalement injuries are more likely to have sustained injury on the right side, as there is reduced risk of striking the heart or great vessels on this side⁵

Our case with impalement injury was directed towards the left side

conclusion

Trans abdomino trans thoracic injury is rare

An unusual impalement injury with multiorgan damage was managed successfully

due to a multidisciplinary approach at a tertiary care

rapid treatment

because the "foreign body was in situ"