Guidelines for clinical management of non-fatal strangulation in acute and emergency care services

Feb 2024  Review date Feb 2025

The Faculty of Forensic & Legal Medicine
**Introduction**

Strangulation is defined as asphyxia by closure of the blood vessels and/or air passages of the neck as a result of external pressure on the neck. There are three main categories: hanging, ligature strangulation and manual strangulation\(^1\). Non-fatal strangulation (NFS) is where the patient has not died.

It is estimated that more than 20,000 victims in the UK experience strangulation each year and one in eleven adult sexual assault victims were strangled during the assault\(^2\). Patients may also have self-harmed by strangulation. In England & Wales, strangulation (including hanging) and suffocation are the most common methods of suicide\(^3\).

These guidelines on the clinical management of NFS have been developed by an Intercollegiate Group in response to the increased understanding of its dangers and prevalence and in the absence of existing UK guidelines.

The four-week timescale for non-symptomatic patients that has been chosen is a balance of the current evidence base regarding risk of significant vascular injury, with its life changing potential, versus pragmatism\(^4\). The Red Flags in Box B are to guide clinicians in identifying those patients most likely to benefit from imaging. As more evidence becomes available this list will be reviewed.

Complementary guidelines for the clinical management of non-fatal strangulation presenting in other settings are planned, as are paediatric guidelines.

We would welcome feedback on the guidelines via contact@ifas.org.uk

**Aims of the guidelines**

- The guidance is aimed at clinicians in acute and emergency care services.
- It has been developed to guide the investigation and management, including appropriate imaging requests, of adult and adolescent patients who have experienced non-fatal strangulation within the last 4 weeks, or are presenting beyond 4 weeks but are symptomatic.
- As for any patient, it is necessary from the outset to ensure urgent assessment +/- resuscitative treatment as required. Remember, patients may have other injuries and/or medical conditions alongside the strangulation.
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**History of non-fatal strangulation (NFS)**
- see **BOX A**

**Currently symptomatic or strangulation happened less than 4 weeks ago**

**Screen for Red Flags**
- see **BOX B**

- Yes to any Red Flag
  - Assess & manage any immediate clinical issues as required
  - Imaging required within one hour
  - see **BOX C**

- No Red Flag
  - Imaging not required
  - Assess & manage any immediate clinical issues as required

**Strangulation occurred more than 4 weeks ago AND currently no associated signs or symptoms**

- Screen for domestic & sexual abuse & refer/seek advice from IDVA/SARC as appropriate
  - see **BOX D**

- Requires admission
  - see **BOX E**

  - Unsure, observe
    - Yes
      - Admit
    - No
      - Discharge plan
        - see **BOX F**
      - Discharge
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BOX A

- Non-fatal strangulation (NFS) is common, especially in domestic and sexual abuse/rape and suicide attempts.
- NFS can have serious consequences such as carotid artery dissection, stroke, acquired brain injury.
- A trauma informed approach is required, including seeing the patient alone when taking history to ensure safety and privacy.
- Patients are unlikely to spontaneously give a history of strangulation.
- Consider NFS:
  - In domestic abuse and sexual violence cases.
  - Patients who appear confused with possible memory gaps. Intoxication, in addition to oxygen deprivation, may add to any confusion.
  - Some may be reluctant to disclose strangulation as it may have been part of consensual activity, including self-inflicted with a ligature.

- Some people partake in NFS as part of consensual sexual practices. It is important to employ a non-judgemental approach whilst ensuring people are aware of the potential harm and the law related to ability to consent to serious harm if that occurs.
- May use language such as “grabbed, held by neck/throat, choked, pinned me down” May use the term “breath play”.
- 50% of victims will have no visible external injury to their neck/head as a result of the strangulation.
- A lack of visible injury MUST NOT influence decision-making around proceeding with radiological investigation.

Given the potential seriousness, (clinically, legally, psychosocial, safeguarding etc.) SENIOR clinical decision maker input is required with NFS patients.

*The law in England & Wales and separately in Northern Ireland, is that one cannot consent to something that causes serious harm.

BOX B: Red flags related to the strangulation

A Airway compromise
- History of significant pressure applied to the neck
- Dyspnoea (objective signs/symptoms)/ voice changes
- Dysphagia or odynophagia (difficulty or pain on swallowing)
- Neck swelling or tenderness of larynx/ trachea

(C) Cervical Spine
- Mechanism concerning for, or radiological evidence identified of, cervical spine injury

B Dyspnoea (objective signs/symptoms)
- Subcutaneous emphysema

C Petechial haemorrhages on face/neck/oral/conjunctival
Any degree of bruising to neck or ligature marks (Note 50% have no mark so absence is not reassuring)
- Carotid bruits (absence is not reassuring)
- Carotid tenderness

D Loss or near loss of consciousness
- Amnesia or altered mental state (dizzy, confused, loss of memory or awareness)
- Incontinence (bladder and/or bowels)

Neurological symptoms or signs
- Seizure
- Stroke like symptoms
- Severe headache
- Tinnitus
- Hearing loss
- Parasthesia

Visual symptoms
- Flashing lights, spots, stars, tunnel vision

Previous head injury/stroke
• Safeguarding assessment including any children or vulnerable adults that may be at risk.
• Discuss with patient options of reporting to police taking into consideration capacity, confidentiality & best interest\textsuperscript{11}.
• Undertake suicide risk/ self-harm assessment. Self-harm by hanging/strangulation often indicates a very high suicide intent\textsuperscript{12}.

Domestic abuse with no report of sexual violence
• All of the above plus:
• Complete DASH assessment (note NFS in itself would warrant a MARAC referral, regardless of overall DASH score) Dash risk checklist quick start guidance FINAL.pdf (safelives.org.uk)
• Independent Domestic Violence Advisor (IDVA) referral

Sexual assault/rape cases (including sexual assault/rape in the context of domestic abuse)
• All of the above plus:
• Consider referral / seek advice from local Sexual Assault Referral Centre (SARC) as a self or police referral.
  England: www.nhs.uk
  Wales: executive.nhs.wales
  Scotland: www.nhsinform.scot
  Northern Ireland: www.nidirect.gov.uk
  • For forensic medical examination
  • Independent Sexual Violence Advisor (ISVA) support
  • Counselling
  • Assess for
  • Emergency contraception
  • HIV & Hep B post exposure prophylaxis.
  • Signpost for window period for STI screening

Admission may be required either for the management of injury, or for social/safeguarding reasons or both. Involve senior decision maker as required. Local pathways to appropriate clinical specialty for admission should be followed.

Considerations for admission:
• Concern about airway
• Clinical condition
• History of significant blunt force/pressure to neck or head\textsuperscript{13}
• Significant findings on imaging

BOX C

Imaging (should be done within 1 hour)
• CT angiography of the neck and intracranial vessels\textsuperscript{a}
• +/- CT head\textsuperscript{b}
• +/- CT chest\textsuperscript{c}

a. Arterial phase study with bone reconstructions of the cervical spine recommended.
b. Initial non-contrast CT head scan if clinical indicators present (GCS <14, witnessed seizure, history of incontinence, focal neurology, concerning blunt trauma to head evident clinically).
c. CT chest scan if clinical indications of subcutaneous emphysema, dyspnoea or concerning blunt trauma to the chest evident clinically

Ultrasound/carotid doppler ultrasound and plain X-rays are NOT RECOMMENDED for evaluation of the vascular or soft tissue structures in this setting.

BOX D: All cases

• Safeguarding assessment including any children or vulnerable adults that may be at risk.
• Discuss with patient options of reporting to police taking into consideration capacity, confidentiality & best interest\textsuperscript{11}.
• Undertake suicide risk/ self-harm assessment. Self-harm by hanging/strangulation often indicates a very high suicide intent\textsuperscript{12}.

BOX E: Requires admission

• Unsafe discharge setting
• Vulnerable population (e.g., children, elderly, pregnant, homeless) and/or safeguarding requirement including self-harm risk.

Consider observation if very acute presentation. Delayed airway difficulties are rare and likely to occur within the first 6 hours post assault, dependent on factors such as type/extent of injury etc.

(NOTE: ‘Observation only’ has NO role in a suspected vascular injury and appropriate imaging is required)
1. Safeguarding
   a. Is the patient safe to go home?
   b. Have all relevant safeguarding referrals been made?

2. Safety netting
   a. Provide patient/carer with information regarding strangulation including signs and symptoms to watch out for that would need urgent medical assessment: Patient-Information.pdf

3. Imaging
   a. For those not seen within 4 weeks of the strangulation and who were not currently symptomatic and have therefore not been scanned, they may still be at risk of vascular problems such as carotid artery dissection due to the blunt neck trauma for up to 12 months post event. Those who screen positive for any Red Flag (see Box B) may require outpatient imaging. Local arrangements will be required to cover such referrals and follow-up etc.
   b. Consider antiplatelet treatment for those being referred for outpatient imaging.

4. Acquired brain injury assessment
   Strangulation may result in acquired brain injury (hypoxic-ischaemic), and this may lead to neuropsychological difficulties such as:
   - Cognitive deficits (attention, memory, executive dysfunction etc)
   - Speech and language difficulties
   - Emotional dysregulation, personality changes and behaviour disturbance including aggression.
   An assessment by a clinical neuropsychologist, or similar, should be undertaken 3 months post the strangulation, with the referral organized by the GP or direct referral dependent upon local arrangement.

5. GP letter
   Following standard local consent to share information processes, include details of strangulation and requested GP actions such as any required referrals in a clear timely fashion, remembering that victims of strangulation are likely to require psychological support. Consider confidentiality/risk issues regarding access to information in patient records.

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**Glossary of terms**

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<tr>
<th>Acronym</th>
<th>Description</th>
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<tr>
<td>CT</td>
<td>Computerised tomography</td>
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<td>DASH</td>
<td>The domestic abuse, stalking and honour based violence risk identification tool</td>
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<td>GCS</td>
<td>Glasgow Coma Scale</td>
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<td>GP</td>
<td>General Practice/General Practitioner</td>
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<td>Hep B</td>
<td>Hepatitis B</td>
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<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
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<td>IDVA</td>
<td>Independent Domestic Violence Advisor/Advocate</td>
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<td>ISVA</td>
<td>Independent Sexual Violence Advisor/Advocate</td>
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<td>MARAC</td>
<td>Multi Agency Risk Assessment Conference</td>
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<td>NFS</td>
<td>Non-fatal strangulation</td>
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<td>SARC</td>
<td>Sexual Assault Referral Centre</td>
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<td>STI</td>
<td>Sexually Transmitted Infection</td>
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<td>UK</td>
<td>United Kingdom</td>
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References


4. Black, Jonathan A. MD; Abraham, Peter J. MD; Abraham, Mackenzie N. MD; Cox, Daniel B. MD; Griffin, Russell L. PhD; Holcomb, John B. MD; Hu, Parker J. MD; Kerby, Jeffrey D. MD, PhD; Liptrap, Elizabeth J. MD; Thaci, Bart MD; Harrigan, Mark R. MD; Jansen, Jan O. MBBS, PhD. Universal screening for blunt cerebrovascular injury. Journal of Trauma and Acute Care Surgery 90(2):p 224-231, February 2021. | DOI: 10.1097/TA.0000000000003010

5. Carotid Artery Dissections: Time from Strangulation to Stroke. Dr Bill Smock, 2018


8. Domestic Abuse Act 2021 Section 71 Consent to serious harm for sexual gratification not a defence.

9. Justice (Sexual Offences and Trafficking Victims) Act (Northern Ireland) 2022, Section 28 Offence of non-fatal strangulation or asphyxiation.

10. BMJ Best Practice Assessment of dyspnoea. Last updated 26.10.2023

11. Confidentiality. Disclosures for the protection of patients and others. GMC 2018


Further reading

- Managing non-fatal strangulation in the emergency department. Emergency Care Institute New South Wales, Australia, October 2022.
- Recommendations for the Medical/Radiographic Evaluation of Acute Adult Non/Near Fatal Strangulation, Training Institute on Strangulation Prevention, October 2022.

Audit standards

There should be a documentation and audit system in place within a system of clinical governance. It is recommended that there should be longitudinal data collection at the local level, including engagement with radiology services, to assess the number of scans and their diagnostic yield.

Research recommendations

A prospective study looking at clinical presentations and subsequent imaging results with an aim to identify more sensitive/specify red flags.

Organisations represented on the Guidelines for the Clinical Management of Non-Fatal Strangulation Development Group

- Association of Police Crime Commissioners
- British Psychological Society
- College of Paramedics
- ENT UK
- Faculty of Forensic and Legal Medicine
- Institute for Addressing Strangulation
- NHS England
- The Royal College of Emergency Medicine
- The Royal College of General Practitioners
- Royal College of Nursing Emergency Care Forum
- The Royal College of Paediatrics and Child Health
- The Royal College of Radiologists
- The Royal College of Surgeons
- UK Association of Forensic Nurses and Paramedics
Acknowledgements

The Institute for Addressing Strangulation would like to thank the members of the Guidelines Development Group for their time and effort assisting with this guidance.

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