Journal of the Academy of Forensic Nursing

Research Reviews

AFN Journal Club Fall Reviews

Christine Foote-Lucero, MSN, RN, CEN, SANE-A, SANE-P, AFN-C, DF-AFN[1]

Corresponding author: Christine Foote-Lucero (Chair – AFN Journal Club)
Email: Cfootelucero@afnmail.org

AFN Journal Club Fall Reviews

The AFN Journal Club meets regularly to review the quality of the evidence available to support our clinical practice. This is a core requirement of professional practice.

AFN Journal Review Criteria

- Evidence tables are for the review of studies that may have implications for clinical practice.
- All articles on this table have been reviewed by the AFN Journal Club.
- Abbreviations are listed in the legend following the reviews.

Melnyk Levels of Evidence (Melnyk & Fineout-Overholt, 2015)

- **Level 1 -** Systematic review & meta-analysis of randomized controlled trials; clinical guidelines based on systematic reviews or meta-analyses
- **Level 2 -** One or more randomized controlled trials
- **Level 3 -** Controlled trial (no randomization)
- **Level 4 -** Case-control or cohort study; correlation design; examines relationships
- **Level 5 -** Systematic review of descriptive & qualitative studies
- **Level 6 -** Single descriptive or qualitative study; does not examine relationships
- **Level 7 -** Expert opinion

Completed Reviews

Spiller, L.R. (2024). Orofacial manifestations of child maltreatment: A review. *Dental Traumatology, 40*(Suppl. 2), 10–17. https://doi.org/10.1111/edt.12852

Study Description/Background Child maltreatment is a widespread problem that is often unrecognized and underreported. Health care professionals have the unique opportunity to identify and report concerns for maltreatment. Proper identification and reporting of concerning findings have the potential to minimize the risk of more severe injuries or events that result in death or long-term health consequences. Intraoral injuries may be overlooked if the medical professional is less familiar with the oral cavity, and up to 75% of all abused children have orofacial injuries. The purpose of this review is to assist medical professionals in identifying which orofacial findings are concerning for abuse and neglect.

Literature Review 69 references, 16 references were from last five years. There is a paucity of literature on some of the types of oral injuries in the literature. All pertained to subject matter, and a few could be considered classic works.

Design/Methods N/A - literature review

Sample N/A

Analysis N/A

Results/Limitations Bruising is an extremely common finding with both accidental and non-accidental mechanisms in childhood; however, it is the most common abusive injury overlooked in an infant or child prior to a more severe abusive injury resulting in a fatality or near-fatality. When any bruising or other injury, except for a self-inflicted scratch, occurs in a pre-cruising infant there should be concern for maltreatment. Intraoral findings that could be concerning for abuse include torn frenulum, unexplained bleeding from mouth, well-demarcated white eschar (from injuries in healing process), sublingual hematomas, lip injuries, bilateral linear injuries in corners of mouth, tongue bruising and lacerations, teeth fractures (multiple teeth are more likely to be involved when the injury was intentional), and avulsed teeth. Extraoral findings that could be concerning for abuse include mandibular fractures, maxilla fractures, orbit fractures, chin bruises/lacerations, nasal bone fractures, nasal septal hematoma, nasal erosion and deformity, facial bruising (with cheeks being most common orofacial site of bruising), subgaleal hematomas, and traumatic alopecia. Oropharynx findings concerning for abuse—perforations of oropharynx (accidental injury to oropharynx in children is rare). Ear injuries concerning abuse include bruising to ears (rarely accidental), and auricular perichondritis, also known as cauliflower ear, which can be caused by repetitive trauma and direct blows to the ear, as often observed in adults who practice martial arts. Eye injuries concerning for abuse include retinal hemorrhages, periorbital ecchymosis and/or edema, hyphema, subconjunctival hemorrhages. Orofacial findings concerning for sexual abuse from forced oral penetration may manifest as erythema, petechiae, and ecchymoses, most often at the junction of the hard and soft palate, unexplained torn frenulum, pharyngeal gonorrhea and chlamydia (diagnostic for sexual abuse but are rarely symptomatic), oropharyngeal human papillomavirus and herpes simplex virus (may be sexually transmitted, but are not diagnostic for sexual abuse in children), gonococcal conjunctivitis, and dental neglect (when it manifests as failure or delay in seeking care for significant caries, trauma and/or oral pain).

Clinical Significance It is crucial that sentinel injuries are recognized, as they often precede more severe injury and death from physical abuse. TEN-4-FACESp tool should be completed on all children under four years of age and carries a sensitivity of 95.6% and a specificity of 87.1% in identifying cases of maltreatment (excluding patient cases of inherited bleeding disorders). It is important for health care providers to understand that a reasonable suspicion of maltreatment is the standard requirement to report the concern. It is not their responsibility to confirm abuse or neglect. More training is needed for dentists, who have a unique opportunity to identify maltreatment.

Level of Evidence 5

Barranco, R., Tettamanti, C., Bonsignore, A., & Ventura, F. (2022). Otorrhagia in strangulations: An important but often underestimated finding in forensic pathology. *Journal of Forensic Sciences*, *67*(4), 1739–1742. https://doi.org/10.1111/1556-4029.15030

Study Description/Background Otorrhagia is poorly described in neck compression, and it is often an underestimated finding. This case report of massive bilateral otorrhagia produced during strangulation includes discussion of the possible pathophysiological mechanisms.

Literature Review 16 references; one within five years but there is a gap in literature of otoscopy exams performed by forensic pathologists/medical examiners.

Design /Methods N/A - case reports

Sample 1 case report

Analysis N/A - case reports

Results/Limitations 87-year-old female with senile dementia found to have been strangled in her bed with a handcrafted garrote consisting of a cloth belt and an apron. Death was attributed to combined manual and ligature (garrote) strangulation, with the ligature in place, a partial ligature impression, and bruising and abrasions of the neck skin. Massive bilateral otorrhagia produced during strangulation by garroting not associated with a head injury. In this case, otorrhagia was supportive of the death by strangulation. Limitations include one case study resulting in poor generalizability due to the unique contexts of one example.

Clinical Significance Otorrhagia can be a vital and relevant sign of neck compression and can aid in the diagnosis of strangulation. Careful and thorough examination of the ears with otoscopy may assist in the assessment of asphyxia due to neck compression and seems to be an underutilized assessment during the postmortem examination.

Level of Evidence 6

Wankhede, AG. (2021). Potential usefulness of otoscopy in the evaluation of hanging deaths: A report of two cases. *Journal of Forensic Sciences*, *67*(2), 809–812. https://doi.org/10.1111/1556-4029.14919

Study Description/Background Case report describing the postmortem otoscopic findings in two cases of suicidal hanging showing petechial hemorrhages in the tympanic membrane (TM), which is a previously reported finding in cases of hanging. Postmortem otoscopic examination of victims of hanging may provide information useful in the determination of vitality of hanging.

Literature Review 11 references, only one reference within five years. Clear research gap with use of otoscopy in postmortem examinations. Included some research with relation to abnormal

otoscopy findings that can be attributed to diving.

Design/Methods N/A - case reports

Sample 2 case reports

Analysis N/A - case reports

Results/Limitations Case #1 was 27-year-old male with history of suicidal hanging with bed sheet at residence. Postmortem exam completed 18h after death, noting subconjunctival petechial hemorrhages and a ligature mark. Otoscopic examination of both the ears revealed petechial hemorrhages in the TM with hemotympanum and engorged superficial blood vessels with bleeding. Case #2 was a 29-year-old male with history of suicidal hanging with a piece of synthetic cloth. Postmortem examination was completed 16h after death. Otoscopic examination of the right ear revealed findings suggestive of impending rupture of the TM and otic barotrauma. In both cases, there was no history or evidence of trauma to the ears or head and externally, and neither case involved bleeding from the ears. Limitations include two case studies of 20s males, resulting in poor generalizability due to the unique contexts of these specific examples.

Clinical Significance Hemorrhages of the TM detected by otoscopy may serve as evidence of congestion within the head and neck region, potentially associated with asphyxiation noted in the dead or live person, similar to periorbital and conjunctival petechial hemorrhages. The identification of petechial hemorrhages aids in the determination of whether the neck compression from hanging was life-threatening and had occurred when the victim was alive. When the vasculature of the neck is compressed or middle ear pressure increases due to cervical compression *in vivo*, hemotympanum and petechial hemorrhages in the TM are evident. Because compression of the neck vasculature and/or respiratory tract affects the middle ear, findings from postmortem otoscopy might be useful in the evaluation of hanging, and possibly other cervical compression deaths. In addition, forensic nurses should consider the utility of otoscopy in all strangulation patients, which also involves compression of neck vasculature and could provide useful assessment findings.

Level of Evidence: 6

Recalde-Esnoz, I., Prego-Meleiro, P., Montalvo, G., Del Castillo, H. (2024, July). Drug-facilitated sexual assault: A systematic review. *Trauma Violence Abuse, 25*(3):1814-1825. doi:10.1177/15248380231195877. Epub 2023 Aug 31. PMID: 37650508.

Study Description/Background This review aimed to collect, analyze, and compare research articles about DFSA phenomenon published up to date to improve understanding of this form of sexual violence.

Literature Review 62 references with 18 being within five years; all generally relate to subject matter; oldest was from 1982 and some may be considered classic works.

Design/Methods Global literature search carried out in March 2022 using search terms “drug facilitated sexual assault” and “DFSA”. Inclusion was Spanish or English articles, research articles, final publications, open access, peer reviewed publications, use of DFSA term, quantitative research, study samples, and measured study variables. Authors excluded articles based upon independent review and when there was disagreement, a third-party opinion from the research team was sought. Exclusion criteria are not well defined.

Sample Initial search resulted in 773 articles but was reduced to 19 articles. Eight articles were from North America (five from United States and three from Canada), eight articles were from Europe (three from Spain, two from United Kingdom, one from Netherlands, one from Norway, and one from Italy), one article from Australia, one article from New Zealand, and one article from Africa. All articles included in final sample performed quantitative analyses. Eight of the articles retrieved data from forensic laboratory databases.

Analysis N/A

Results/Limitations DFSA prevalence varies widely from 1.5%–78.5%. This may be due in large part to different DFSA definitions and inclusion criteria globally. Female victims vary from 81.6–100% in proactive DFSA and 80% in opportunistic DFSA. Most assailants are men ranging from 98.3–100%. In most cases, victims and assailants knew each other previously with friendship being the most frequent bond. Data suggests that in most cases, there is a single assailant. Many victims report voluntary ingestion of alcohol, followed by cannabis. Rohypnol, GHB, and stimulant drugs comprise most of the involuntary ingestion with frequent presence of benzodiazepines and antidepressants being highest pharmaceutical drugs detected during toxicological analyses. Most common locations include private residence and night-life venues. Many articles report that victims tend to be women under 30 years old with this specific form of sexual violence predominately occurring at night and on weekends. Limitations include lack of standard definition of DFSA, gaps with homosexual and male victims, results being primarily self-reports from victims, limited search terms used in this systematic review, selection bias, data only collected from DFSA cases that reported, lack of methodological and sampling homogeneity, limitations in understanding of DFSA and possible misunderstanding of alcohol as a DFSA substance, and limitations of results to urban settings.

Clinical Significance Need for standardized definition of DFSA. Need for uniformed prevalence measure, need for more awareness of opportunistic DFSA as well as DFSA among gender diverse and homosexual populations, need for more education and awareness as a strategy to decrease DFSA risk and victim blaming, need for better policy development. Nurse authorship, particularly forensic nurse authorship, may have enhanced article relevance, contributions to clinical practice, and provided contextual lens.

Level of Evidence 5

Legend: TEN-4-FACESp=bruising to the Torso, Ears, Neck, Frenulum, Angle of the jaw, Cheeks, Eyelids or Subconjunctivae, 4 represents infants 4 months and younger with any bruise, and p represents the presence of patterned bruising; **TM**= Tympanic Membrane; **DFSA=** Drug Facilitated Sexual Assault; **GHB**= Gamma-hydroxybutyrate.

Reference

Melnyk, B.M., & Fineout-Overholt, E. (2015). “Box 1.3: Rating system for the hierarchy of evidence for intervention/treatment questions” in *Evidence-based practice in nursing & healthcare: A guide to best practice* (3rd ed.)(pp. 11). Philadelphia, PA: Wolters Kluwer Health. ISBN 9781451190946