Table 1
Hemodynamic parameters, blood loss.

Dressing type	Number of animals	Number of dressings used[a]	Pretreatment blood loss (mL)[b]	Post-treatment blood loss (mL)[c]	Blood loss total (mL)	Time to hemostasis (s)
CSD	5	5.2	238.36	81.62	319.98	45

CSD Chain Sponge Dressing. Data expressed as mean ± SD.
[a] Sample testing was stopped after no oozing.
[b] Blood loss during 30-second free bleed.

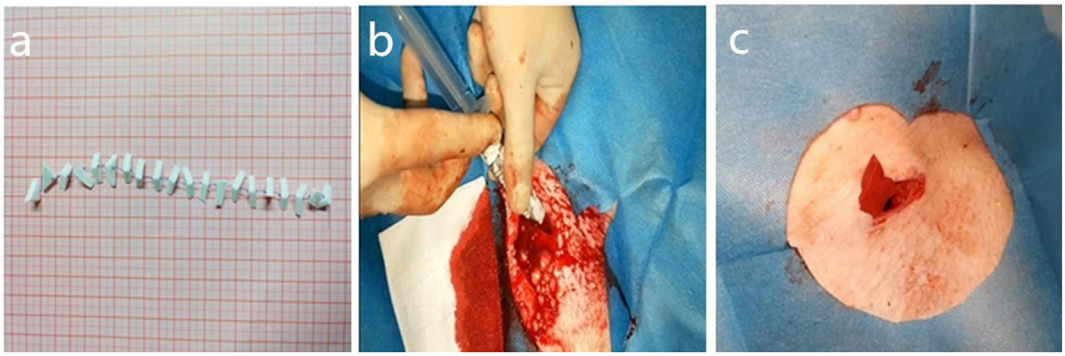

Fig. 1.

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The effects of skin pigmentation on the detection of genital injury from sexual assault

As technology and examination techniques have improved, the literature reflects a growing ability by examiners to detect genital injury following rape and sexual assault. Previous investigators have suggested that individuals with darker skin may be at a disadvantage for injury identification with current examination strategies (direct visualization, nuclear staining, colposcopy), and color awareness may be an important component of the sexual assault forensic examination [1,2]. Women with dark skin may not have their injuries treated and will be at a disadvantage throughout the criminal justice system if injury is not detected [1]. The purpose of this study was to investigate the role of skin pigmentation in the visual identification of genital injury following sexual assault in adolescent and adult women.

This retrospective cohort analysis evaluated consecutive female patients presenting to a community-based Nurse Examiner Program (NEP) during a 10-year study period. Sexual assault victims presenting directly to four downtown emergency departments are routinely referred to the NEP for evaluation after triage and initial assessment. The clinic is associated with a university-affiliated emergency medicine residency program and is staffed by forensic nurses trained to perform medical-legal examinations using colposcopy with nuclear staining. Patient demographics, assault characteristics, and injury patterns were recorded using a standardized classification form. For the purposes of this study, injury was defined as any tissue trauma visible on inspection which was then subsequently classified using the TEARS classification system: tears, ecchymosis, abrasions, redness, or swelling in the topology proposed by Slaughter and Brown [3]. Because the registry data does not provide specific information on skin pigmentation, race/ethnicity was used as a proxy for skin pigmentation [1]. We included only those women who self-reported as non-Hispanic white or non-Hispanic black. The primary outcome of interest was the documentation of anogenital injuries from sexual assault in whites versus blacks living in the same urban community. Chi-square and ANOVA tests were used to compare anogenital findings in victims examined. To reduce the inflated risk of a type I error that occurs when a large number of statistical analyses are conducted, we choose a p-value <0.01 for statistical significance.

Case files of 2234 patients were reviewed; 83.3% were white and 16.7% were black. The two cohorts were comparable in terms of age, marital status, type of sexual assault, alcohol and drug use, known assailant, and time to physical exam (Table 1). Whites had a 14%

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Table 1
Patient demographics and assault characteristics.

	White	Black
Total	1862 (83.3%)	372 (16.7%)
Age of victim, mean (SD)	25.2 (11.1)	26.3 (13.2)
Marital status (% single)	75.7%	76.6%
No prior history of sexual intercourse	12.4%	9.5%
Alcohol or drug use <24 h	58.3%	53.6%
Last consensual intercourse <72 h	19.8%	23.1%
Time interval to exam, mean hrs (SD)	17.4 (7.0)	18.0 (9.3)
Police report filed	77.5%	83.6%
Known assailant	73.9%	73.7%
Multiple assailants	9.0%	12.1%
Type of coercion		
Restraint used	36.6%	37.1%
Use of weapons	16.0%	18.3%
Victim sleeping/drugged*	24.3%	19.9%
Type of sexual assault		
Vaginal	85.4%	88.2%
Oral	26.9%	28.5%
Anal	13.2%	11.8%
Digital	27.6%	23.9%
Nongenital injuries (%)	53.0%	47.6%
Anogenital injuries (%)*	76.1%	61.9%
Anogenital injuries, mean (SD)*	2.3 (1.7)	1.6 (1.2)

* Indicates significance at the $p < 0.001$ level.

greater prevalence of documented anogenital injuries (76% vs. 62%, $p < 0.0001$). The localized pattern of anogenital injuries was similar in both cohorts; typically involving the fossa navicularis, followed by the posterior fourchette, labia and hymen. The most common type of injury in all patients was lacerations; however, whites had a greater incidence of documented erythema (32% vs. 23%, $p < 0.001$).

Despite the use of colposcopy with nuclear staining and digital imaging, forensic examiners in this community-based study consistently documented fewer anogenital injuries in black women. Our study limitations include retrospective study design, a single urban clinical center, and the variability in skin pigmentation across and within races and ethnicities. Recognizing that whites do not necessarily have low amounts of skin pigmentation and blacks a high amount of skin pigmentation, our findings suggest that individuals with darker skin may be at a disadvantage for injury identification despite colposcopy and nuclear staining techniques. In a similar study of sexual assault cases, Cartwright found that white women of all ages had almost twice as frequent anogenital injuries as black women [4]. Sommers et al. also found a significant association between race (black vs white) and genital injury in a community sample of sexual assault survivors and concluded that the odds for genital injury among whites was more than four times greater than blacks [5]. Coker and colleagues found that among male sexual assault survivors, their race (being white) was significantly associated with traumatic physical injury [6].

An alternative explanation for our findings is that sexual assault in white victims was associated with more violent behavior. However, the victim demographics were similar regarding weapon use, location, victim incapacitation, multiple assailants, or known assailant (Table 1). An alternative but less likely explanation is that differences may exist that make skin of some populations more resistant to injury than other populations. This has not been well studied in the medical literature. Further prospective work is needed to understand the racial/ethnic differences in genital injury prevalence and to determine if these differences are related to lack of sensitivity of the current forensic exam procedures or innate differences in the properties of the skin.

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A proposal for prospective evaluation of elderly subjects with low Glasgow Coma Scale

The favourable outcomes reported following traumatic brain injury (TBI) [1] will enhance optimisation of the management of patients of mean age 36 (Standard Deviation 14) with Glasgow coma scale (GCS) 4–5. The same will be true of patients of mean age 24 (Standard Deviation 23) with GCS 1–3. What we now need is a similar study to be conducted in patients aged 65–85 with traumatic brain injury. In a previous retrospective study which enrolled 66 patients with traumatic intracranial haematomas in that age group, all 18 patients with GCS of 4 or less, and all 22 patients with unilateral or bilateral non-reactive pupillary dilatation had a poor outcome. However, that study did not identify how many patients with bilateral fixed dilated pupils belonged to the category of GCS 4 or less [2].

Thanks to increasing uptake of oral anticoagulants in nonvalvular atrial fibrillation [3] we should anticipate an increase in incidence of intracranial bleeding attributable to traumatic brain injury. The management of elderly patients who incur that complication will need to be informed by results from prospective studies which focus on elderly subjects with GCS 4 or less so as to validate or refute criteria for surgical intervention [2,4] used in those patients.

In the latter retrospective study of 112 consecutive patients aged 65 or more with traumatic intracranial haematoma (TIH), surgery was performed in 70. Multivariate logistic regression analysis revealed that GCS of 5 or less was significantly ($P < 0.001$) associated with unfavourable outcome. Nevertheless, patients undergoing surgery were significantly ($P <$

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