The Journal of Laryngology & Otology

cambridge.org/jlo

Cocaine screening in patients undergoing nasal reconstructive surgery: a cross-sectional, survey-based study of UK rhinology consultants

H Raja[1], K Lai[2] and V Sunkaraneni[3]

[1]ENT Department, Queen Elizabeth Hospital Birmingham, Birmingham, UK, [2]ENT Department, Basingstoke and North Hampshire Hospital, Basingstoke, UK and [3]ENT Department, Royal Surrey County Hospital, Guildford, UK

Main Article

Mr H Raja takes responsibility for the integrity of the content of the paper

Cite this article: Raja H, Lai K, Sunkaraneni V. Cocaine screening in patients undergoing nasal reconstructive surgery: a cross-sectional, survey-based study of UK rhinology consultants. *J Laryngol Otol* 2023;**137**: 1149–1153. https://doi.org/10.1017/S0022215123000312

Accepted: 14 February 2023
First published online: 1 March 2023

Keywords:
Rhinology; cocaine; nasal reconstruction; drug screening; substance abuse

Corresponding author:
H Raja;
Email: haseemraja@hotmail.com

Abstract

Objective. This study aimed to explore the current practices of the UK rhinology consultant body in regard to cocaine screening in nasal reconstructive surgery.
Method. A 12-question online survey was distributed to rhinology consultants (October 2021 to February 2022) currently practising in the UK.
Results. A total of 55 consultants responded. Fifty-three per cent asked patients about cocaine use prior to consideration of surgery, and 45 per cent performed cocaine testing prior to consideration of surgery. Of these, the majority employed urine testing alone (60 per cent), with hair testing being less common as a single screening modality (4 per cent). Sixteen per cent opted for both urine and hair testing. The most common reasons for not performing cocaine testing included patient history or clinical examination that was not suggestive of cocaine use (44 per cent), lack of formal guidelines (33 per cent) and lack of testing availability (27 per cent). Sixty-four per cent were in favour of a national policy for cocaine screening.
Conclusion. There is marked variation in cocaine screening practices for nasal reconstructive surgery among UK rhinologists.

Introduction

Reconstruction of a nose damaged by cocaine is a complex undertaking in rhinology. Highly addictive and widely prevalent in society, cocaine is a psychoactive substance that can cause a range of nasal defects, including septal perforation and cartilage erosion.[1] This damage is caused by local ischaemia secondary to vasoconstriction, chemical irritation, infection secondary to trauma and impaired mucociliary transport.[2] In addition, cocaine is often cut with other agents, such as levamisole, that can amplify these effects, leading to further nasal destruction.[3] With repeated intra-nasal cocaine abuse, this can cause irreversible damage and scarring, resulting in total nasal collapse.

Abstinence from cocaine prior to nasal reconstructive surgery is important to reduce risk of complications, optimise patient satisfaction and outcomes, and ensure National Health Service resources are being effectively utilised, particularly when surgical waiting lists are at a record high.[4] There is, however, a paucity of literature on current practice among UK rhinologists in cocaine screening for nasal reconstructive surgery. This is particularly significant given that many cocaine users are reluctant to disclose their habits.[5]

In this study, we aimed to investigate the current opinions and practices of the UK rhinology consultant body in regard to cocaine screening for patients undergoing nasal reconstructive surgery.

Materials and methods

Design and setting

A cross-sectional study was performed between October 2021 and March 2022. A 12-question online survey was devised by the authors (HR, KL and VS) and distributed to UK rhinology consultants via e-mails from ENT UK and the British Rhinological Society. Survey questions focused on assessing screening practices for cocaine use in patients undergoing nasal reconstructive surgery, including types of testing performed and future perspectives regarding a national policy (Appendix 1). We defined nasal reconstructive surgery as septoplasty, septorhinoplasty and surgical repair of septal perforation. Statistical analysis was carried out using Microsoft Office Excel® spreadsheet software. Participation in the questionnaires was voluntary, and all responses were anonymised. Ethical approval was not required as no direct patient information was acquired.

Results

A total of 55 rhinologists who performed nasal reconstructive surgery completed the online survey (Table 1), and 29 surgeons (53 per cent) asked patients about cocaine

Table 1. Baseline characteristics

Parameter	Value* (*n* (%))
Cocaine use asked about prior to surgery	
– Yes	29 (53)
– No	26 (47)
Local pre-operative screening policy	
– Yes	9 (16)
– No	44 (80)
– Not answered	2 (4)
Offering to ex-cocaine users	
– Septoplasty	50 (91)
– Septorhinoplasty	46 (84)
– Septal perforation repair	25 (45)
Duration of cocaine abstinence before proceeding with surgery	
– ≤6 months	1 (2)
– 6–12 months	9 (16)
– >12 months	41 (75)
– >24 months	2 (4)
– Not answered	2 (4)
Offering to active cocaine users	
– Septoplasty	3 (5)
– Septorhinoplasty	1 (2)
– Septal perforation repair	0 (0)
Cocaine testing performed prior to surgery	
– Yes	25 (45)
– No	30 (55)
Type of testing performed†	
– Urine	15 (60)
– Hair	1 (4)
– Blood/serum	2 (8)
– Urine & hair	4 (16)
– Sweat & hair	1 (4)
– Urine, hair & blood/serum	2 (8)
Timing of cocaine testing†	
– First clinic appointment	5 (20)
– Clinic appointment (not first appointment)	8 (32)
– First clinic appointment & further clinic appointment	2 (8)
– Pre-operative assessment	5 (20)
– First clinic appointment & pre-operative assessment	1 (4)
– Day of surgery	2 (8)
– First clinic appointment, further clinic appointment, pre-operative assessment & day of surgery	1 (4)
– Other	1 (4)
Reason for not undertaking cocaine testing‡	
– Patient history/clinical examination not suggestive of usage	13 (43)
– Testing not available	8 (27)
– Uncertain whether testing is available	7 (23)
– Too expensive	1 (3)
– Lack of formal policy/guidelines	10 (33)
– Other	3 (10)
In favour of national pre-operative cocaine screening policy	
– Yes	35 (64)
– No	5 (9)
– Unsure	15 (27)

*$n = 55$; †$n = 25$; ‡$n = 30$

use prior to consideration of nasal reconstructive surgery. Only 9 rhinologists (16 per cent) had a formal policy of pre-operative screening for active cocaine use, with 44 rhinologists (80 per cent) not having a formal policy; 2 surgeons (4 per cent) did not answer this question.

Regarding ex-cocaine users, 50 rhinologists (91 per cent) would offer septoplasty surgery if indicated, 46 (84 per cent) would offer septorhinoplasty and 25 (45 per cent) would offer surgical repair of septal perforation. When asked how long the patient must have ceased using cocaine prior to surgery, 1 (2 per cent) answered less than or equal to 6 months, 9 (16 per cent) answered 6–12 months, 41 (75 per cent) answered more than 12 months, 2 (4 per cent) answered 24 months and 2 surgeons (4 per cent) did not answer this question.

Regarding active cocaine users, 3 rhinologists (5 per cent) would offer septoplasty if indicated, 1 (2 per cent) would offer septorhinoplasty and none would offer surgical repair of septal perforation.

In terms of performing cocaine testing prior to consideration of surgery, 25 rhinologists (45 per cent) performed testing. Among the respondents who performed cocaine testing, 15 (60 per cent) performed urine testing, 1 (4 per cent) performed hair testing, 2 (8 per cent) performed blood or serum testing, 4 (16 per cent) performed urine and hair testing, 2 (8 per cent) performed urine, hair and blood or serum testing, and 1 (4 per cent) performed hair and sweat testing.

Five rhinologists (20 per cent) performed testing at the first clinic appointment, 8 (32 per cent) performed it at a follow-up appointment, 2 (8 per cent) performed it in both first and follow-up appointments, 5 (20 per cent) performed it during pre-operative assessment, 1 (4 per cent) performed it at first clinic appointment and in pre-operative assessment, 2 (8 per cent) performed it on the day of surgery, 1 (4 per cent) performed it at the first appointment, follow-up appointment and pre-operative assessment, and 1 (4 per cent) did not specify this and stated that testing would be performed whenever concerns are elicited based on clinical history and examination.

Among the respondents who did not undertake cocaine testing, the most common explanation given was that patient history or clinical examination were not suggestive of cocaine use (13 rhinologists, 43 per cent). Eight (27 per cent) stated testing was not available at the hospital trust, with 7 (23 per cent) unsure whether testing was available. One surgeon stated testing was too expensive. Ten rhinologists (33 per cent) stated the reason was a lack of formal policy or guidelines. Three rhinologists (10 per cent) gave other reasons that included testing

https://doi.org/10.1017/S0022215123000312 Published online by Cambridge University Press

being undertaken by other services (not specified), testing being costly and unnecessary, and testing increasing patient anxiety and damaging rapport with the clinician.

When asked whether they would be keen to follow a national formal policy for pre-operative screening of active cocaine use in patients undergoing nasal reconstructive surgery, 35 rhinologists (64 per cent) responded yes, 5 (9 per cent) responded unsure and 15 (27 per cent) responded no.

Discussion

Cocaine abuse poses a significant challenge in nasal surgery. This is the first study investigating the current practice and opinions of UK rhinologists on cocaine screening in patients undergoing nasal reconstructive surgery. Currently, no national consensus exists regarding the role of pre-operative screening for cocaine use. This is significant because cocaine users are often unlikely to disclose their habits to avoid potential experiences of stigma and discrimination.

Potent and highly addictive, cocaine is the second most commonly used illicit drug in the UK behind cannabis, with around 3 per cent of the population aged 16–59 years taking it last year.[6] In comparison with the earlier part of last decade, the proportion of adults who had used cocaine in the last year has increased by 73 per cent.[6] This abuse can be in the form of smoking, injecting, or more commonly, snorting.[5] The acute effect of intra-nasal cocaine abuse is intense vasoconstriction, a mechanism that is often utilised in nasal surgery.[7] Repeated use of intra-nasal cocaine causes pathological change to the nasal mucosa leading to ischaemic necrosis of structures, including the perichondrium and septal cartilage. The toxic effects of contaminants and cutting agents, such as levamisole, further contribute to the mucosal injury.[3,8] Clinical presentations include epistaxis, crusting, ulceration and nasal deformities. In extreme cases, cocaine-induced midline destructive lesions can occur causing destruction of the midface osteocartilaginous structures involving the nasal lateral walls and hard palate.[8]

Complete abstinence from cocaine use is vital in improving the outcome and success of nasal reconstructive surgery, including minimising post-operative complications.[9–11] Walker *et al.* recommended that patients should be free from cocaine use for more than 18–24 months prior to closure of septal perforations.[8] Guyuron and Afrooz stated that patients should be cocaine free for 'several years' before undertaking reconstructive surgery for cocaine-related nasal deformities.[9] The majority of rhinologists in our survey agree that patients should cease using cocaine for more than 12 months prior to nasal reconstructive surgery, with two respondents stating a minimum period of abstinence of 24 months. None would offer surgical repair of septal perforation to active cocaine users, although a very small percentage would offer septoplasty and septorhinoplasty.

Obtaining a comprehensive clinical history and performing a thorough examination is important to identify patients who may be an ex- or active cocaine user. We found that only half of the respondents in our survey always asked about cocaine use prior to consideration of nasal reconstructive surgery. This is an important finding given that cocaine users are less likely to be forthcoming with their habits.[10] Caulley *et al.* reported undisclosed cocaine use confirmed on urine drug screening in 37 per cent of patients who presented with features of cocaine-induced rhinitis.[5] Absence of accurate information regarding a patient's abstinence can negatively impact the pre-operative informed consent process and ultimately affect patient and surgical outcomes.

We found that, although 16 per cent of rhinologists in our survey reported having a formal, pre-operative screening policy for cocaine use, 45 per cent performed testing on their patients. Cocaine drug screening can be performed on various biological specimens, such as blood, urine, saliva, sweat and hair.[12,13] Among the rhinologists who performed cocaine testing in our survey, urine drug screening was most commonly used, with 84 per cent of the respondents utilising urine testing, with or without other forms of testing. This is likely because of the ease of sample collection with urine specimens, the non-invasive nature of testing and the existing laboratory testing facilities in hospitals. Furthermore, the detection times of cocaine or benzoylecgonine, one of the main metabolites of cocaine, are extremely variable. The detection time of cocaine in blood is between 4–12 hours depending on the dose of cocaine. In chronic users, benzoylecgonine can be detectable up to eight days. In saliva, cocaine use can be detected for 12–24 hours. Urine testing can generally detect intra-nasal cocaine use for 48–72 hours.[13] Therefore, abstinence of cocaine use for this period of time can result in a negative urine sample.

Hair testing was less often employed by the rhinologists in our survey. This screening method has a much larger detection window of months to years compared with other types of testing, depending on the length of the hair shaft.[14,15] The large window of detection is useful in determining if a user's claim of abstinence is accurate. Sample preparation for hair, however, is extensive and more time-consuming; external contamination from the environment may lead to false positives.[14] Moreover, it is much less readily available in routine clinical practice[8] and costs roughly twice as much per test as the equivalent urine test.[16]

In our survey, the timing of testing varied among the rhinologists who performed cocaine testing. Most performed cocaine testing at the first and/or subsequent clinic appointments. This may be because of the convenience of collection and the ability for surgeons to discuss the rationale of drug screening during clinic appointments. Plus, given the short detection window in most types of drug screening except hair testing, first clinic appointments may be preferable as patients are less likely to be aware of the need for drug screening and therefore unable to cheat the screening process by abstaining for a short period in order to generate a negative result. Testing at multiple stages of the patient journey can further enable surgeons to detect non-disclosures and poor compliance to abstinence. This process, however, is more time-consuming and costly.

- Recreational cocaine use is relatively common in the UK
- Intranasal cocaine use can lead to a spectrum of complications, including septal perforation and cartilage erosion
- Users may be reluctant to disclose their cocaine habits
- Current practice among UK rhinologists in cocaine screening for nasal reconstructive surgery is unknown
- This study has demonstrated that there is marked variation in cocaine screening practices for nasal reconstructive surgery among UK rhinologists

Among the respondents who did not undertake cocaine testing, over half of them stated the reason as testing not being available or uncertainty regarding availability of testing. One-third stated no testing was performed because of a lack of formal policy or guidelines. A national database of current

https://doi.org/10.1017/S0022215123000312 Published online by Cambridge University Press

practice and protocols may help to establish UK consensus and guidance on cocaine screening in patients undertaking nasal reconstructive surgery. This may support and facilitate rhinologists to successfully implement cocaine screening capabilities in their local hospitals. We found that the majority of rhinologists in our survey demonstrated they would be keen to follow a formal national policy on cocaine screening in patients undergoing nasal reconstructive surgery. This may reduce any ambiguity, allow for practices to be audited clearly and lead to improved patient and surgical outcomes.

Limitations

Our study has some limitations. First, interpretation of the results from our survey was potentially limited by the small sample size and, given the nature of sampling (voluntary survey), the degree of possible selection bias. In particular, rhinologists who performed cocaine screening may have been more enthusiastic in completing the survey. Second, the survey was distributed to ENT-UK and British Rhinological Society members and therefore does not include the practices of UK rhinologists who are not members of these societies, including those who have trained as plastic or maxillofacial surgeons. Finally, the provision of multiple-choice answers for surveying may have been potentially leading in some of the questions, although an option of 'other' was provided for relevant questions, including a free text box for respondents to expand on their answers.

Conclusion

Recreational cocaine use is relatively common in the UK and poses a significant risk in nasal surgery. Our survey shows a marked variation in cocaine screening practices prior to nasal reconstructive surgery among UK rhinologists. A national database of current practices and local protocols could help to establish UK consensus regarding the role of cocaine screening prior to nasal reconstructive surgery.

Acknowledgements. The authors would like to thank ENT UK and the British Rhinological Society for distributing our questionnaire.

Competing interests. None declared.

References

1 Nitro L, Pipolo C, Fadda GL, Allevi F, Borgione M, Cavallo G *et al.* Distribution of cocaine-induced midline destructive lesions: systematic review and classification. *Eur Arch Otorhinolaryngol* 2022;**279**:3257–67
2 Smith JC, Kacker A, Anand VK. Midline nasal and hard palate destruction in cocaine abusers and cocaine's role in rhinologic practice. *Ear Nose Throat J* 2002;**81**:172–7
3 George TC, Freet DJ, Cross JM, Huzar TF. Levamisole-induced vasculitis. *JAAPA* 2019;**32**:23–7
4 Rathnayake D, Clarke M, Jayasinghe V. Patient prioritisation methods to shorten waiting times for elective surgery: a systematic review of how to improve access to surgery. *PLoS One* 2021;**16**:e0256578
5 Caulley L, Takhar A, Bast F *et al.* Non-disclosure of cocaine use in the rhinology practice: a retrospective study of 27 patients. *Clin Otolaryngol* 2020;**45**:608–10
6 Office for National Statistics. Drug misuse in England and Wales: year ending March 2020. In: https://www.ons.gov.uk/peoplepopulationandcommunity/crimeandjustice/articles/drugmisuseinenglandandwales/yearendingmarch2020 [22 August 2022]
7 Harper SJ, Jones NS. Cocaine: what role does it have in current ENT practice? A review of the current literature. *J Laryngol Otol* 2006;**120**:808–11
8 Walker A, Joshi A, D'Souza A. Care of the cocaine user with nasal deformity. *Fac Plast Surg* 2017;**33**:411–18
9 Guyuron B, Afrooz PN. Correction of cocaine-related nasal defects. *Plast Reconstr Surg* 2008;**121**:1015–23
10 Slavin SA, Goldwyn RM. The cocaine user: the potential problem patient for rhinoplasty. *Plast Reconstr Surg* 1990;**86**:436–42
11 Bloom JD, Kaplan SE, Bleier BS, Goldstein SA. Septoplasty complications: avoidance and management. *Otolaryngologic Clin North Am* 2009;**42**:463–81
12 Moeller KE, Kissack JC, Atayee RS, Lee KC. Clinical interpretation of urine drug tests: what clinicians need to know about urine drug screens. *InMayo Clin Proc* 2017;**92**:774–96
13 Verstraete AG. Detection times of drugs of abuse in blood, urine, and oral fluid. *Therapeutic Drug Monitor* 2004;**26**:200–5
14 Harrison R, Fu S. A review of methodology for testing hair for cocaine. *J Forens Invest* 2014;**2**:1–7
15 Boumba VA, Ziavrou KS, Vougiouklakis T. Hair as a biological indicator of drug use, drug abuse or chronic exposure to environmental toxicants. *Int J Toxicol* 2006;**25**:143–63
16 DuPont RL, Baumgartner WA. Drug testing by urine and hair analysis: complementary features and scientific issues. *Forens Sci Int* 1995;**70**:63–76

Appendix 1. Twelve-question survey to assess cocaine screening practices for nasal reconstructive surgery among rhinologists

1. Please state your subspecialty

Rhinology and facial plastics	Otology	Head and neck
Paediatric	General	Other – please specify

2. Do you perform nasal reconstructive surgery (i.e. septoplasty, septorhinoplasty, surgical repair of septal perforation)?

Yes	No

3. Do you always ask patients about cocaine use prior to consideration of nasal reconstructive surgery?

Yes	No

4. Do you have a formal policy for pre-operative screening of active cocaine use in patients undergoing nasal reconstructive surgery?

Yes	No

5. Do you offer ex-cocaine users the following nasal reconstructive surgery if indicated? Please select N/A if you don't perform the operation.

Septoplasty	Yes	No	N/A
Septorhinoplasty	Yes	No	N/A
Surgical repair of septal perforation	Yes	No	N/A

N/A = not available

6. How long must the patient have ceased using cocaine prior to nasal reconstruction surgery?

≤6 months	6–12 months	>12 months	Other – please specify

https://doi.org/10.1017/S0022215123000312 Published online by Cambridge University Press

7. Do you offer active cocaine users the following nasal reconstructive surgery if indicated? Please select N/A if you don't perform the operation.

Septoplasty	Yes	No	N/A
Septorhinoplasty	Yes	No	N/A
Surgical repair of septal perforation	Yes	No	N/A

N/A = not available

8. Do you perform cocaine testing prior to consideration of surgery?

Yes	No – please select 'N/A' for questions 9 and 10

9. If you perform cocaine testing, what type of test do you use? Please select all relevant answers.

Urine test	Hair test	Urine and hair test	Saliva test
Blood/ serum test	Sweat test	Other – please specify	N/A

N/A = not applicable

10. If you perform cocaine testing, when do you do it? Please select all relevant answers.

First clinic appointment	Clinic appointment (not first appointment)
Pre-operative assessment	Day of surgery
Other - please specify	N/A

N/A = not applicable

11. What is the reason you do not undertake cocaine testing? Please select all relevant answers.

Patient history/clinical examination are not suggestive of cocaine use	Testing is not available in my trust	
Unsure whether testing is available in my trust	Too expensive	
Lack of formal policy/ guidelines	Other - please specify	N/A

N/A = not applicable

12. Would you be keen to follow a national formal policy for pre-operative screening of active cocaine use in patients undergoing nasal reconstructive surgery?

Yes	No	Unsure

https://doi.org/10.1017/S0022215123000312 Published online by Cambridge University Press