

Commentary

Groin injecting in the context of crack cocaine and homelessness: From ‘risk boundary’ to ‘acceptable risk’?

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Abstract

Drawing on data from recent surveys and pilot qualitative interviews among injecting drug users (IDUs) in England, we highlight the potential ‘normalisation’ of the use of the femoral vein (groin) as a site of injection. We estimate that 45% (428/952) of IDUs in English cities report groin injecting in the last 4 weeks, rising to over 50% in some areas. We also note transitions towards the injection of crack cocaine among poly drug injectors in some UK locations. We estimate that 40% (381/952) of IDUs in English cities report crack injection in the last 4 weeks, rising to over 70% in some cities. Findings from pilot qualitative interviews among homeless injectors in London are suggestive of groin injecting being situated as an ‘acceptable risk’. We emphasise the need for research to explore the potential interplay between unstable housing, groin injecting and crack injecting. We call for renewed emphasis within harm reduction interventions advising injectors how to maximise the health and longevity of arm and other peripheral veins, and for greater preparedness to advise known groin injectors how to minimise health risks associated with groin injecting.

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Ten years ago, when one of us was conducting qualitative research among heroin injectors in London, the groin (or femoral vein) was commonly presented as a “risk boundary” in relation to places on the body to administer an injection (Rhodes, 1995). Going into the groin was described as a place where few injectors “ended up”, having “completely run out of all veins”, having for example “been through wrists, elbows, arms, ankles, neck, everywhere” (Rhodes, 1995, p. 138). Groin injection signified for many a breakdown in risk management, and transgression towards “deterioration”, even “junkie” behaviour. In the early to mid-1990s, injecting into the groin was not the norm among injectors in London

and the UK, and most would “fall just short” and “refuse” to inject there:

My arms have been cold, and I’ve been screaming and shouting and trying to get a fix. . . The only place I haven’t fixed, and I never will do, even if I’ve used every vein in my body, is my groin. (from Rhodes, 1995, p. 136)

Groin injecting, crack cocaine and homelessness

Much has changed with respect to patterns of injecting in the UK over the last decade. During the early 1990s, a significant increase in the proportion of London injectors who were also using crack or cocaine was noted, with 16% (85/534) reporting the use of crack cocaine in a 6 month period in 1990 rising to 59% (297/507) by 1993 (Hunter, Donoghoe,

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& Stimson, 1995). The proportions injecting crack at least once in the previous 6 months also increased from 1% (3/531) in 1990 to 27% (132/493) in 1993. Ten years later, we conducted a survey in 2003/2004 of 952 drug injectors overall recruited from community settings in six cities in England and found that 40% (381/952) of injectors overall had injected crack cocaine in the previous 4 weeks (Table 1), usually in combination with opiates (Health Protection Agency, Health Protection Scotland, National Public Health Service for Wales, & Centre for Research on Drugs and Health Behaviour, 2005). We also found considerable regional variation as in two of the sites – Bristol and Manchester – over 70% were injecting crack cocaine. In a cohort study of recently initiated injectors in London ($n=428$), conducted between 2001 and 2003, we found that around half (53%) had injected cocaine or crack in the last 12 months (Judd et al., 2005).

Our surveys also show that high proportions of injectors have experienced recent homelessness. In our six city study ($n=952$), 58% of injectors reported being homeless in the last year (defined as having stayed on the streets, night-shelters, or as no fixed abode). In our London cohort study ($n=428$), 66% of those followed up reported ever being homeless at some point in the past (defined as having slept on the streets or in makeshift shelters or as having stayed in a night-shelter at least once in the last seven nights; A. Judd, personal communication). Not only is recent experience of homelessness common among injectors, but UK studies of homeless populations also show high proportions reporting recent drug use, including the use of heroin and crack cocaine. In one study of 389 homeless people recently or currently ‘sleeping rough’ (on the streets or in makeshift shelters or tents, not including squats) in inner London in 2000, 47% had used heroin in the last month, and 47% crack cocaine in the same time period (Fountain, Howes, & Strang, 2003). Conversely, within a recent UK study of 398 needle exchange users from London, Leeds and Glasgow, 50% were either sleeping rough (12%), in insecure housing (5.5%) or residing in hostels (33%) (N. Hunt, personal communication).

Few UK studies have estimated the prevalence of groin injecting. In our survey of injectors in six English cities we found that almost half (45%) of the total sample reported groin injection in the last 4 weeks (Table 1), rising to 58% of injectors in central Manchester (data not shown). While we did not find any association between groin injecting in the past year and previous experience of homelessness, higher proportions of those who had lived in squats or had ‘no fixed

address’ during most of the past year reported groin injection compared to those who had lived mostly in houses, apartments, prisons or hostels (52% versus 43%, $p=0.028$). In addition, 49% of those who injected into their groin in the past month reported crack injection (compared with 34% of those not injecting into their groin, $p<0.001$). Those injecting into their groin in the last month had been injecting only marginally longer (median of 10 years compared with 9 years for those not, $p<0.001$), and more frequently (median of three times a day compared with twice daily for those not, $p<0.001$). Of particular concern was that groin injectors were more likely to report an ‘open wound’ at injection site (26% versus 18% $p=0.003$) and to have had deep vein thrombosis in the last year (28% versus 8% $p<0.001$). This study also found that those reporting recent homelessness and groin injecting had elevated odds of being HCV positive (Hickman et al., 2006). How precisely homelessness, groin injecting and crack injection interplay together in different environments, including in relation to elevated infection risk, requires further exploration (Health Protection Agency et al., 2005). Taken together they would appear to signal the relevance of structural forces shaping risk and vulnerability in socially marginalised populations of injectors. There is a lack of ethnographic research in the UK exploring crack and groin injection, including in the context of homelessness, and this would appear to be a next step towards developing social epidemiological measures of micro-environment in relation to risk (Galea, Nandi, & Vlahov, 2004; Poundstone, Strathdee, & Celentano, 2004).

In a smaller survey ($n=76$) conducted in 2004 among current injectors in East Kent, England, of whom 19% were poly drug injectors and only one a primary crack cocaine injector, 56% reported groin injection ever and 41% had done so in the last 4 weeks (N. Hunt, personal communication). A survey of 698 injectors in South Wales, conducted in late 2004 and early 2005, 9% of whom were current crack injectors, found fewer injectors – 17% – reporting groin injection in the last 4 weeks than in the London or East Kent surveys (Table 1) (N. Craine, personal communication). There are no recent published estimates of the prevalence of groin injection among Scottish injectors, although a survey of injectors in Glasgow conducted in 1994 found 40% (206/520) to have injected into their groin in the last year, and 30% (154/520) using their groin as their most common injecting site (S. Hutchinson, personal communication). We highlight a surprising absence of published data on the extent of use of different inject-

Table 1
Groin and crack injection in the last 4 weeks among IDUs in England and Wales, 2003–2004

	<i>n</i> (%) Groin injecting	<i>n</i> (%) Crack injecting
England ($n=952$): six locations ^a	45% (428)	40% (381)
Wales ($n=698$): seven locations ^b	17% (116)	9% (60)

^a Locations sampled were: Manchester ($n=250$); Bristol ($n=202$); Teeside (198); Plymouth ($n=102$); Exeter ($n=100$); Wigan ($n=100$).

^b Locations sampled were: Cardiff and the Vale ($n=201$); Pontypridd and Rhondda Cyon Taff ($n=63$); Abergavenny ($n=11$); Swansea and Neath ($n=127$); Merthyr Tydfil ($n=94$); Newport and Caldicot ($n=151$); Bridgend ($n=51$).

ing sites among injecting populations in the UK and their relationship with infection risk, and a need for the routine collection of such data in future surveys.

From ‘risk boundary’ to ‘acceptable risk’?

Does groin injection remain a ‘risk boundary’ for most injectors as 10 years ago or has groin injection become more of an ‘acceptable risk’ in some cities and circumstances? We have suggested that groin injecting emerges in survey research as an increasingly normative pattern of administering injection in some metropolitan English cities (for example, London, Bristol, Manchester). Qualitative observations are also suggestive of the normalisation, and perhaps increased ‘social acceptability’, of groin injection in some environments. Recent observational work we have undertaken in London and Bristol with injectors of ‘speedball’ (heroin and crack mixed together into a single shot) are suggestive of a shift having occurred in these cities in the social practices and pattern of how injections are administered; from groin injection constituted as a symbol of risk and boundary to the groin as a normative, rational, and socially acceptable, injection site. Groin injecting was observed among longer term injectors, homeless injectors and those injecting in public injecting environments, but also among recent initiates into injection who were not homeless or whose groin injection had not come about as a consequence of damaged alternative veins (Rhodes, Briggs, Holloway, Jones, & Kimber, 2005).

Pilot qualitative interviews among homeless injectors in London (Stoneman, 2004) indicate that groin injection often occurs when other sites become unusable: “I’ve got no veins left, the only place I’ve got left is my groin”; “It was taking me an hour to get a hit, so it was groin or give up, and I wasn’t prepared to give up”. Other research in the UK also supports the idea that most injectors use their groin when they perceive themselves to have “no other sites left” (Maliphant & Scott, 2005; Rhodes, 1995). Additionally, and drawing on pilot qualitative work in London (Stoneman, 2004), a number of other factors combine to create a ‘situated rationality’ for the acceptability of groin injecting.

First, the groin is described as a reliable site of injection; as a “sure shot”. The groin offers both ease and speed of access (at least when practised at groin injection), whereas there is a risk of losing the contents of an injection through a missed or awkward injection, for example when attempting to inject into smaller, damaged or inaccessible veins or when attempting injection using the non-dominant hand. For homeless injectors, the ‘sure shot’ of the groin may also be preferred because of the additional difficulties of finding a vein associated with cold weather: “If I’m out in the cold, that [the groin] is the only place you can get, cos your veins go down in the cold”; “It could be –6 and you would probably still get it whereas if you were using your arms you’d have no chance.” Additionally, the groin may be preferred when

injecting in environments of limited physical space and when lighting is poor. Furthermore, the groin can be used *repeatedly* over time, especially when a sinus develops, which facilitates ease of access: “I see where I’m going. It’s just X marks the spot”; “It was just straight in, and 30 seconds later that was it”.

Second, the groin enables speedy injection. Groin injection is “convenient” and “a lot quicker” which for homeless injectors is expedient given the perceived risks of disruption or police intervention associated with public injecting (Cooper, Wypij, & Kreiger, 2005; Kerr, Small, & Wood, 2005; Rhodes et al., 2006; Small, Kerr, Charette, Schechter, & Spittal, 2006): “It is definitely more easier and quicker than anything, because I’ve seen some places where police come along, and they’ve got it in seconds. . . You’re thinking there’s no need to do that as you’ve got brilliant veins, but this is quicker”.

Third, the groin is hidden, and groin injection discrete. The groin enables injection without the creation of visible physical track-marks: “It was basically because my girlfriend didn’t know that I was still on drugs. She never knew that I was injecting”; “I’m trying to get a bit of money begging, and people just won’t give it to you if they think you’re a junkie, so scarred-up arms are out.” Groin injection also enables discrete injection, especially important when injecting in public places: “You can do it under a camera. It looks like you’re doing a wee [urinating]. You can do it discretely. With your arms, you have to pull your arms up, sit down, tourniquets. With your groin, you can walk into a corner or a doorway and people just think that you’re going to the toilet”.

Fourth, the groin is perceived as safer. An awareness of health risks associated with groin injecting (for example, vascular complications, thrombosis, ulcers, arterial infection) may co-exist with a perception that groin injection is not only more expedient (thus reducing perceived risks of disruption or police interference), but safer as far as injection site hygiene and surface bacterial infections are concerned: “I’d had so many problems, digging around for ages in my arms, it was impossible. . . If I knew exactly where it [the needle in the vein] was I wouldn’t have so many problems now, I wouldn’t have these abscesses, cos it’s much safer to go in your groin than doing this sort of thing to myself”.

Fifth, the groin is an acceptable site of injection. One key factor shaping a shift towards groin injection is its perceived acceptability, perhaps normalisation, at least among the homeless: “I know friends of mine who go in their groin. . . You could put a tube train down some of their veins in their arms, they’re enormous, and yet they choose to go in their groin”; “I guess a lot of my friends and peers are going in their groin”. This normalisation is reinforced by the finding that some respondents in the East Kent survey identified the groin as the site in which they were first taught to inject.

Taken together, groin injection is an outcome of multiple and sometimes contradictory concerns wherein the perceived risk acceptability of injecting into the groin may be shifting. This may be especially the case in the context of homelessness, where the ease, speed and assuredness of groin

injection may be rationalised as a form of ‘risk management’ strategy to reduce the risk of lost or missed hits, abscesses and surface infections, and police detection or interruption when injecting in public. This emphasises a ‘situated rationality’ of risk acceptability associated with groin injecting (Rhodes, 1997).

Discussion

There is an absence of data on the physical sites used for injection (Darke, Ross, & Kaye, 2001; Maliphant & Scott, 2005). One Australian survey estimated that over 90% of first time injections occur in the cubital fossa (inner aspect of the elbow), before alternative sites are used, such as forearms, upper arms, hands, neck, feet and legs (Darke et al., 2001). A retrospective case note study of soft tissue sepsis among 488 injecting drug users who attended an accident and emergency department in Glasgow, Scotland, in 1986 found that in 31% of cases there was evidence of either abscesses or cellulites and that the most common sites of infection related to injection were forearm/wrist (31%), the cubital fossa (19%), fingers and hand (14%), and thigh or groin (11%) (Stone, Stone, & MacGregor, 1990). Most research investigating injecting site associated infections does not systematically explore the extent to which different injecting sites are used in different injector populations (Binswanger, Kral, Luthenthal, Rybold, & Edlin, 2000; Takahashi, Merrill, Boyko, & Bradley, 2003).

Published research tends to offer a ‘linear progression model’ to describe transitions in the use of injecting sites, in which new sites are used to replace previous sites once these are beyond use (as a consequence of damage to venal vascular structure leading to sclerosis), with injectors ‘ending up’ using the groin after many years of injection. Harm reduction guidance has long emphasised the ongoing rotation of injection sites, as a means of avoiding vein damage and related infections. The *Safer Injecting Briefing* – a well used publication and web-based resource for health and drug professionals in the UK – states that that “the loss of usable arm veins will leave the injector with stark choices: either to stop injecting and switch to smoking or sniffing, or to move to another site on the body with greater inherent risks”, and thus recommends that “when the arm veins can no longer be used, injectors should consider, and workers should promote, switching to a non-injecting route of drug use” (Derricott, Preston, & Hunt, 1999). But it appears that such advice may rarely be heeded (Maliphant & Scott, 2005).

Like our own estimates from surveys in England, in their study of Australian injectors, Darke et al. (2001) estimated the mean average time elapsing between first injection and groin injection at 10 years. The East Kent survey of 76 injectors estimated the time elapsed between first injection and groin injection at 5 years, with an average duration of 3.6 years groin injecting reported. A study among a small convenience sample ($n = 47$) in Bristol estimated the time elapsed

at 7 years, with an average duration of 2.6 years groin injecting reported (Maliphant & Scott, 2005). This latter study noted that when injectors speak of having used all alternative injecting sites, this may refer to those sites perceived to be *convenient* and *rational* to use, and that some injectors took up groin injection prior to exhausting, or attempting, alternative injection sites. Our own observations suggest that groin injecting is common, and that this may also be the case among injectors who are recent initiates, have alternative injection sites that have not been exhausted or who are not homeless. This is suggestive of the normalisation of groin injection among UK injectors. A ‘linear progression model’ may become less appropriate for capturing transitions in the use of injecting sites than a ‘situated rationality’ model of risk and injecting which seeks to take account of how micro-environments shape risk practices, including over time (Rhodes, 1997).

We emphasise the need to investigate the potential interplay of homelessness, groin injection and crack injection to explore whether and how these factors together may associate with elevated infection risk. Other studies note the clustering of homelessness and other social–material factors with health risk, including HIV risk, behaviour among injectors (Corneil et al., 2006; Barrow, Herman, Cordora, & Struening, 1999; Fountain et al., 2003; Galea & Vlahov, 2002; Neale, 2001; Rhodes, Singer, Bourgois, Strathdee, & Friedman, 2005; Roy, Haley, Lecterc, Cedras, & Boivin, 2001). Additionally, evidence links crack and cocaine injection with higher prevalence of bacterial and wound infections (Murphy et al., 2001; Spijkerman, Van Ameijden, & Mientjes, 1996; Van Beek, Dwyer, & Malcom, 2001), and there have been recent reports of increased bacterial infection associated with injecting in the UK (Health Protection Agency et al., 2005). Possible shifts towards groin injection among injectors in the UK coincide with transitions towards ‘poly’ injecting drug use and the combined injection of heroin and crack cocaine (Brain, Parker, & Bottomely, 1998; Hope, Hickman, & Tilling, 2005), including as a ‘speedball’ (heroin and crack cocaine mixed together into a single injection).

We have noted how groin injection is situated in the context of homelessness. Additionally, it is possible that groin injection is shaped by crack injection. A combination of factors linked with crack injection may increase risks of vascular damage (as well as bacterial and wound infection) as well as a transition towards groin injection, including: the frequency of injection; multiple attempts to obtain venous access and use of multiple injection sites per injection attempt; crack cocaine acting as a local anaesthetic at injection sites increasing the potential for vascular and tissue damage at the injection site due to reduced sensation when injecting; the use of excess citric or other acids in the preparation of ‘speedball’ contributing to vascular damage; and repeated ‘drawing back’ or ‘flushing’ of blood into the syringe borne out of a need, and sometimes compulsion, to repeatedly check that the hit remains good or repeat the sensation associated with injection.

Long term use of the groin may also lead to vascular complications and circulatory problems such as deep vein thrombosis, leg ulcers as well as arterial infections (MacKenzie, Laing, Douglas, Greaves, & Smith, 2000; Rozler, McCarroll, & Donovan, 1988; Woodburn & Murie, 1996). While the formation of a sinus at the injection site facilitates ease and speed of access, it also provides an environment conducive to bacterial infection. Crucially, the close proximity of the femoral vein to the femoral artery and nerve makes groin injection risky, should the vein be missed. In the East Kent survey, of 29 injectors who had injected into their groin in the last 4 weeks, 19 reported lifetime experience of acciden-

tally injecting into the femoral artery while 16 reported that they had injected accidentally against the femoral nerve. For many of the London injectors we interviewed over 10 years ago, “going into the artery by accident” was key rationale for avoiding groin injection (“it terrifies me”), and acknowledged as particularly dangerous by the minority of injectors who regularly used their groin:

He’s [partner] gone into his groin and he’s missed and he’s gone into his artery, and of course, if you do that you feel the heat rush down inside of your leg. And it feels like your toes are going to just come right off. It’s just so painful.

- Wash hands before and after injecting
- Introduce and remove needles gently
- Inject slowly
- Alternate injection sites, allowing veins to rest and recover
- Smoke rather than inject in order to rest veins
- Become ambidextrous to enable injecting in both arms, and learn to do this before the onset of any vein problems
- Remove the needle
- Stay away from sites that have become infected
- Use sterile needles only once

Source: Derricott et al., 1999

Fig. 1. Harm reduction advice on injecting into arm veins.

- Use the correct needle (either a blue or green hub, depending on the amount of fat and tissue between the skin surface and the femoral vein)
- Find the femoral pulse
- Keeping the fingers on the pulse, move two fingers' breadth away towards the centre line of the body (it is important to be very clear about which direction to move in, as movement in the wrong direction will increase the chance of hitting the femoral nerve)
- Push the needle in straight (that is, at a 90 angle with the skin surface)
- Pull back the plunger to establish that the needle is in the vein
- Inject slowly
- Apply pressure to the site for at least one minute following removal of the needle
- This instruction should be given on the clear understanding that the worker is offering no guarantees for the safety of the procedure, which is carried out at the client's own risk. If the injector accidentally hits the femoral artery they should:
- Discontinue the injection
- Remove the needle
- Apply firm pressure to the site for at least 15 minutes
- Seek medical advice

Source: Derricott et al., 1999

Fig. 2. Harm reduction advice on groin injecting.

It's absolute agony. A grown man, no matter how strong he is, will cry and cry. . . Then of course, you can lose your leg through that. We've both been lucky, and I've got other friends who have been lucky as well, but the luck can't hold out" (from Rhodes, 1995, p. 138)

Conclusion

Taken together, our data are suggestive of the normalisation of groin injection among UK injectors, including among homeless and crack injectors who may be at elevated risk of viral and bacterial infection (Health Protection Agency et al., 2005). We note an absence of published data in the UK on physical injecting sites, and the need for such data in future surveys of injectors. We emphasise the need for harm reduction interventions in the UK to give renewed emphasis to advising injectors how to maximise the health and longevity of arm (and other peripheral) veins (Fig. 1), while having greater preparedness to advise known groin injectors how to minimise risks associated with groin injecting (Fig. 2). There is arguably balance in the extent to which 'safer groin injecting' should be promoted. One of the largest suppliers of harm reduction guidance and materials in the UK for example, withholds from its website access to the text of its guidance "*In the Groin: A Guide to Femoral Injecting*" because "femoral injecting is so dangerous" (see: <http://www.exchangesupplies.org/publications/inthegroin/inthegroin>). With as many as 50% of injectors in some English cities reporting groin injection, we emphasise the need for harm reduction interventions to pay greater attention to the risk management of groin injecting, alongside a focus on the potential interplay of crack injection and homelessness.

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