

FORENSIC EVIDENCE OF MURDER-SUICIDE
People v. Christopher Vaughn, Will County, IL No. 07-CF-1308

Prepared by Bill Clutter, Private Investigator

GSR AND BLOOD ON BOTH HANDS CONSISTENT WITH SUICIDE

At 9:00 a.m. 6/14/07 **CSI Robert Deel** administers Gunshot Residue Analysis on the hands of Kimberley Vaughn: One of the standard questions on this form asks: "Any debris and/or blood on subject's hands?" Deel writes: "**Blood on both hands**" (D3761)

Asked what was the purpose of doing gunshot residue testing? Deel replied, "Mostly because I was asked to by investigators, to rule out if she did it." (Clutter interview 4/7/09) Gunshot residue was found on both the left and right hand of Kimberly Vaughn. (D3748)

"Occasionally, gun smoke deposits are noted on both hands, especially on the one that was used to steady the weapon while the other pulled or pushed the trigger." (Medicolegal Investigation of Death, edited by Werner Spitz p. 682)

"In shooting incidents, the first point to be addressed during forensic investigation is whether it is an instance of murder, accident, or suicide. This is where close examination of the hands can yield valuable clues. Gunpowder residue, but also lesions to the hands caused by the firearm (trigger, breech, etc.), is of importance as well as biologic material such as blood, fatty tissue, or brain tissue spattered onto the trigger hand or the supporting hand." (See *Blood-Spatter Patterns: Hands Hold Clues for the Forensic Reconstruction of the Sequence of Events*, American Journal of Forensic Medicine and Pathology, June 2003, p. 132)

LEFT HAND OF KIM VAUGHN



Autopsy #5411 Left hand

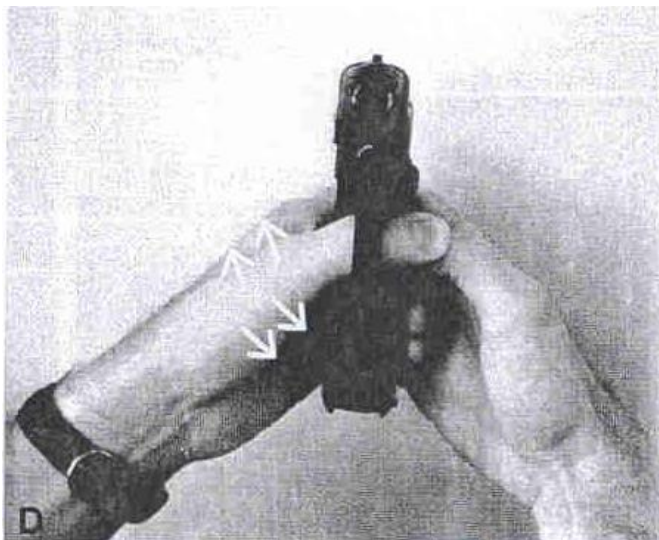
Dr. Bryan Mitchell: "There is dry, crusted blood on the inner left forearm and on the left hand around the thumb." (D3989)



Left hand If Kim held the gun under her chin and used her left thumb to pull the trigger, this pattern of blood may be consistent with suicide. No DNA analysis was conducted by the Illinois State Police or the forensic pathologist to identify whose blood this is.

Blood-Spatter Patterns: Hands Hold Clues for the Forensic Reconstruction of the Sequence of Events, American Journal of Forensic Medicine and Pathology June 2003:

Figure D:



"(D) View from ahead; reconstruction of the position of the hands and the gun. Blood spatter is mostly expected on the back of the thumb that is used for pulling the trigger and the thumb areas of the hands. The palm of the left hand is partially covered by the prominent parts of the hand as well as the handle of the gun." (p. 136) "When interpreting the stains, one should take the following aspects into account: first, blood stains occur not only during the bullet impact or exit (back spatter or forward spatter) but also following blood seepage or dripping from the wounds. . . The latter marks differ from the forward-or back-spatter stains in being larger, heavier drops caused by slow dripping and leaving more regular patterns." (p. 139)

"Zwingly (1941) was the first who realized that bloodstain patterns on the trigger hand could be used for the reconstruction of the relation of the trigger hand to the entry wound at the moment of firing; he also found that no bloodstains were present on the parts of the hand that were covered by the weapon." (p. 133)

Backspatter on the Firearm and Hand in Experimental Close-range Gunshots to the Head, Karger, Nusse, and Banjanowski, The American Journal of Forensic Medicine and Pathology, vol. 23, #3, Sept. 2002.

This journal reports on experimental testing by a veterinarian on cows wearing surgical gloves. The gloves were microscopically inspected for back spatter blood stains.

"The presence of back spatter stains establishes a clear link between a person or object and a clearly defined gunshot, especially if the stains are individualized by DNA analysis. However, no conclusions can be drawn from the absence of backspatter stains on the firearm or hands, which was the case in two of nine gunshots. In these instances, special attention should be directed to the shoes and pants of a suspect because these objects are likely to be in the downward parabolic flight path of the droplets. Early and careful inspection, including magnification, is recommended." (p. 213) Blood stain patterns on the left hand of Kim Vaughn were formed by the downward parabolic flight path of blood droplets.

RIGHT HAND OF KIM VAUGHN



Autopsy #5414 Right hand

Blood evidence may be also found on the non-trigger hand that is used to steady the weapon.

(Forensic pathology of trauma: common problems for the pathologist Michael J. Shkrum, David A. Ramsay - Medical - 2007 -pp. 317-18)

Dr. Bryan Mitchell: "There is some dry, crusted blood noted on the inner edge of the right thumb." (D3989) This bloodstain appears to be smeared blood. Again, no DNA analysis was conducted to confirm the identity of this blood source.



Autopsy #5415

Right hand (inside palm) Note: The blood on the inner edge of the right thumb is not visible from this view. There is no blood on the inside palm of the right hand.

BLOOD ON TOWEL CONSISTENT WITH SELF-INFLICTED WOUND



DNA testing of the blood stains on the front (passenger side) of the center counsel determined it was Chris' blood. This concentration of blood is in line with Chris' blood that was found on the left side of Kim Vaughn's shirt, the passenger seat belt shoulder strap, buckle and lap strap. According to Bob Deel, Chris would have been leaning to his right when the bullet penetrated his left leg. (Clutter interview 4/7/09). Can directionality be determined based on the pattern and swipe?

The towel was normally wrapped around the gun when it was stored. It was inadvertently washed at the morgue. (D609) No DNA testing was conducted to determine the identity of the blood source. The pattern and concentration of the blood stains on the towel appear to be consistent with a downward parabolic flight path of blood droplets. This concentration of blood spatter stains is directly below the contact wound of the chin if Kim Vaughn self inflicted. This blood stain pattern appears to be distinct and separate from the bloodstains on the center counsel that was identified as Chris Vaughn's blood i.e. no connecting blood trail. The blood stains on the left inside leg correspond with the stains on the towel.

If Chris Vaughn inflicted the wound to the chin standing outside of the open passenger door, the natural reaction would be for Kim to move her head back and away from the gun. Under this scenario, one would expect to find Kim's blood on the front of her shirt. The only blood identified was that of her husband. It is unlikely that she would have positioned her head over the towel, if her husband thrust the gun under her chin. If this was staged by grabbing her hair and positioning her head into place, one would expect to find trauma to the scalp from the

hair being pulled. There is no evidence of this. If the blood on the towel is her blood, it is more consistent with a self-inflicted wound.

WOUND BELOW CHIN CONSISTENT WITH SUICIDE



Crime Scene #564

Dr. Mitchell: "Gunshot wound to the chin-Partial muzzle imprint and soot deposition consistent with contact range." (D3991)

"A contact wound favors suicide. . . In a Dallas, TX study, all 199 suicides by a single gunshot wound to the head were contact, compared with 11 (9%) of 119 homicides. Only two non-contact wounds were seen in a data base of 1200 firearm suicides. In a New Mexico-South Carolina study of 77 suicidal firearm wounds, 97% were contact and 3% were intermediate range. In a Texas study, 97 % of wounds were contact, and the other three were intermediate range." (Forensic Pathology of Trauma: Common Problems for the Pathologist, Michael J. Shkrum, David A. Ramsey, 2007, Chapter. 6 Penetrating Truama: Close Range Firearm Wounds, pp. 306-07)

A Texas study found that 4.8% of self-inflicted gunshot wounds were under the chin. (p. 311) Chin entry wounds tend to be self-inflicted." (*Ibid* 312)

According to another source found on-line: "The table below identifies the site of the entrance wound by type of weapon used in suicidal firearms deaths:

Suicidal Firearms Deaths			
Site	Handgun(%)	Rifle(%)	Shotgun(%)
Right temple	50.0	22.9	9.3
Left temple	5.8	3.3	3.7
Mouth	14.5	24.3	31.7
Forehead	5.9	15.7	8.1
Under chin	2.4	9.1	10.6
Back of head	3.6	3.8	1.2
Chest	13.2	15.7	19.9
Abdomen	1.4	1.9	5.6
Other	3.2	3.3	9.9

In the above series, contact wounds were found in 97.9%, intermediate in 2.0%, and a combination of these or an unknown range in the remainder."

Source: <http://library.med.utah.edu/WebPath/TUTORIAL/GUNS/GUNINJ.html>

GUN LOCATION CONSISTENT WITH SUICIDE



ISP CSI **Bob Deel**: "I think the gun was dropped from above and that's where it went." There was no evidence he found to suggest any staging of the gun's placement. (Clutter interview 4/7/09)

Crime Scene #553 The gun is found on the floorboard between the feet of Kim Vaughn.

"Finding a firearm, particularly in proximity to the deceased, is supportive of suicide." (Forensic Pathology of Trauma: Common Problems for the Pathologist, Michael J.

Shkrum, David A. Ramsey, 2007, Chapter. 6 Penetrating Truama: Close Range Firearm Wounds, p. 297)

ORIENTATION OF WOUND BELOW CHIN IS CONSISTENT WITH SUICIDE

"When individuals shoot themselves, they do not necessarily hold the weapon the same way they would if they were firing the weapon at a target. Commonly, they will hold a handgun with the fingers wrapped around the back of the butt, using the thumb to depress the trigger, firing the weapon (Figure 14.2)." (Vincent Di Maio, Gunshot Wounds: Practical Aspects of Firearms, Ballistics, and Forensic Techniques, (1999), p. 358) (Figure 14.2 shows a picture of a man with a self-inflicted wound below the chin with the gun sight oriented pointing toward the chin, as the autopsy photo below of Kim Vaughn indicates a similar orientation).



Autopsy #5407

The blood on Kim's forearm is located on the underside of the forearm arm, consistent with a position of pulling the trigger as indicated in the diagram on p. 2.

TOXICOLOGY CONSISTENT WITH SUICIDE:

"The forensic pathologist plays a pivotal role in classifying the manner of death as homicide, suicide, accident, or natural. Both an extensive scene investigation and a thorough postmortem examination **with complete toxicological study** are warranted in the determination of a suicide." (Forensic Pathology Reviews, Trends of Suicide in the United States During the 20th Century).

Dr. Mitchell: "Toxicology shows Topiramate within the therapeutic range. Nortriptyline is present in the blood." (D3991)

FDA Medication Guide for Topamax/Topiramate issued 5/12/09 Warning: "Suicidal Behavior and Ideation. Antiepileptic drugs (AEDs), including TOPAMAX, increase the risk of suicidal thoughts or behavior in patients taking these drugs for any indication. Patients treated with AED for any indication should be monitored for the emergence or worsening of depression, suicidal thoughts or behavior, and/or any unusual changes in mood or behavior." Of the 11 antiepileptic drugs evaluated by the FDA, Topamax (generically known as Topiramate) had the highest odds ratio (OR) of 2.57. The mean average odds ratio for all eleven of these antiepileptic drugs was 1.80. (Source: FDA Statistical Review And Evaluation Antiepileptic Drugs and Suicidality, pp. 23, 43)

Similar warnings were also in place for Nortriptyline, a class of drugs known as are selective serotonin re-uptake inhibitors (SSRIs).

"Suicide is usually an irrational act which a rational individual would be unlikely to understand." (Medicolegal Investigation of Death, edited by Werner Spitz p. 682)

SUICIDAL MOTHERS ARE MORE LIKELY TO MURDER THEIR CHILDREN

"The investigation of murder-suicides is often difficult if family members are involved because the perpetrator is dead and those who are in the best situation to provide pertinent information to the investigators may also have been killed. Psychological autopsies with review of the medical records of the perpetrator and interviews with work colleagues and relatives may provide insight into the events leading up to the fatal attack; however, this information is often not available on coroner's files." (p. 339)

"Although homicides tend to occur more commonly within lower socio-economic groups, murder-suicides have been found to be more a middle class phenomenon in several studies. . . Some studies have shown that murder-suicides may involve more violent methods than homicides alone, suggesting greater levels of frustration and aggression." (p. 340)

"Familial murder-suicides often involve a parent who murders their children and then commits suicide. . . As noted, there are often higher numbers of females involved in murder suicides with children, and it had been hypothesized that the action of killing the children is an extension of suicide and that the perpetrator is acting altruistically to 'save' her children from the dangers of the world." (Forensic Pathology Reviews Edited by Michael Tsokos, Chapter 11 Murder-Suicide: An overview, by Roger W. Byard, MD p. 342)

Motivation for murder-suicide is often influenced by a psychological disturbance. (p. 345)

PSYCHOLOGICAL DISTURBANCE CONSISTENT WITH MURDER-SUICIDE

According to the investigation of the Illinois State Police, on the last day of school (June 7, 2007) at Thompson Junior HS, **Jacob Wade** had a conversation with classmate Abigayle Vaughn. "Abigale (J/S) made a statement to all present that her mom (Kimberly E. Vaughn, F/W, DOB 12/12/72-deceased) was hearing 'thoughts in her head' and that her mom was 'psycho'" (D301)

BULLET TRAJECTORY EVIDENCE CONSISTENT WITH MURDER-SUICIDE

On Jan. 8, 2009, defense investigation of the crime scene discovered key evidence that enabled reconstruction of the bullet trajectory which indicates that the gun was fired from the passenger seat. Crime scene investigator, Tom Bevel, retained by the defense, inspected the Ford Expedition. He discovered that the bullet that penetrated the abdomen of the child seated in the middle of the back seat passed completely through the seat and in the third row seat. Using a dowel rod, Bevel was able to establish that the bullet trajectory is consistent with Kim Vaughn being the person who fired the gun.



On Aug. 18, 2009, defense expert Luke Haag, a specialist in firearms, conducted an inspection of the Ford Expedition. Using a laser pointer attached to a dowel rod, Haag was able to demonstrate the position of the shooter.

