

CASE REPORT

Thinking Outside the Box

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To prevent the possibility of any bias developing, many forensic document examiners are taught that they should get as little background information on a case as possible. In some cases, the lack of background information can be both misleading and detrimental to discovering the truth. This paper describes a case history in which background information on a medical record was necessary to resolve the case. The information was obtained after all examinations had been completed. However, if known beforehand, the information may have saved both valuable time and resources. Giving an opinion is easy; finding the truth may be much more difficult.

Introduction

To prevent the possibility of any bias developing, many forensic document examiners (FDEs) are taught that they should get as little background information on a case as possible (Osborn 1929; Conway 1959; Huber and Headrick 1999; Morris 2000). In some cases, the lack of background information can be both misleading and detrimental to discovering the truth. This reported case involved a medical record. The clients contended that they had personally produced 2 known documents from the original medical record and that the hospital subsequently altered the original medical record. The purpose of the examination was to determine if the original medical record was in fact altered. The documents examined were:

- Q1(a,b) Original questioned medical record dated May 13, 2003, within a medical chart file, bearing handwritten notations in black ink on both the obverse and reverse side (Appendices 1,2).
- K1a Photocopy of the obverse side of a medical record dated May 13, 2003, bearing handwritten notations (Appendix 3).
- K1b Photocopy of the reverse side of a medical record dated May 13, 2003, bearing handwritten notations (Appendix 4).

Note: The authors redacted information regarding the names of the patient and hospital.

Methods

The First Examination

Comparison of the obverse (a) side of Q1 and K1a documents disclosed that the majority of the handwritten entries were superimposable. However, differences were noted on Q1 in the lower-left margin. There were a bracket and the words *unable to do 20 pt cent stand*; and on the right side of the 19th line, the entry *pain 0/10* appeared. On K1a, the entry *pain 0/10* appeared in the lower-left margin where *unable to do 20 pt cent stand* appeared in Q1, and there was no text on the right side of the 19th line. Comparison of the reverse (b) side of Q1 and K1b disclosed the upper half of both documents superimpose; however, the last 6 written lines on Q1 do not appear on K1b.

Several documents within the submitted medical records file were processed for indented impressions of handwriting with an Electrostatic Detection Apparatus (ESDA) manufactured by Foster + Freeman (UK). Impressions from handwritten entries on the obverse and reverse sides of Q1 were found on a medical record dated May 8, 2003. The impressions of the entries *pt unable to do 20 pt cent stand* and *pain 0/10* were out of registration with the other impressions resulting from the handwritten entries on the obverse side of Q1. Nondestructive examination of Q1 with a Video Spectral Comparator 4c (Foster + Freeman) disclosed that at least 3 different inks were used to complete the handwritten entries.

No evidence of erasure (mechanical or chemical) was found on either side of Q1. It was obvious from the examination and comparison of questioned and known documents that K1a and K1b (both photocopies) were derivatives of Q1. However, in the absence of proof of erasure or other means of obliteration without a trace, the examiner could give no explanation for the discrepancies between the Q1 and K1 specimens.

The Call for Assistance

An e-mail was sent through an international mailing list of colleagues requesting suggestions on the possibility of undetectable erasures. This initial message read:

Is anyone aware of a technique(s) that can completely remove ball pen ink from one side of a page without affecting the ball pen writing on the other side? The paper is of standard thickness. Can ordinary check-washing chemicals do this?

Below are the (edited) responses received:

Laser ablation is one technique that comes to mind. The success of this method would be facilitated if the writing is on "white" rather than colored or tinted paper. Evidence of impressions in the paper should still remain visible, however.

The application of fluid eradicators would likely be absorbed by the paper and affect ink entries on the opposite side of the page. Depending on the amount of fluid applied to the document, evidence of wetting might also be visible if this technique was used. It is well-known that many chemical eradicators also affect the appearance of the document under ultraviolet light.

If writing on the face and reverse sides were produced at different times, it could be possible to apply chemicals to one side of the document...remove those entries and then produce the entries on the opposite side of the sheet. I don't know, however, if that is a possibility with the document you are referring to.

Some years back I had a case where the amounts on some Republic money orders were erased and reprinted with higher amounts. The printing was dot matrix, which lays on the paper surface like ballpoint ink. The technique involved using an architect/

engineers electric eraser (Koh-I-Noor brand) which gave them a "fine touch" so that they could literally buff off the dot matrix printing taking off only the surface fibers. Fiber disruption was visible only with side light and under low power magnification. This was done with quite a number of documents (and, obviously, no serious safety features were in the paper).

One of the members of a check-washing ring said that he altered the stolen checks with pumice or some other polishing agent and then used a damp cloth and a hot iron to re-wet the fibers and press them back down. This would seem to be a pretty tedious technique for an entire page (our suspect was just altering the payee data on the checks).

One process that springs to mind that I have seen is the eradication of entries utilizing a mini 'sand blaster' type of apparatus which effectively sprays powder under high pressure onto the document and removes ink quite effectively. The device is no bigger than a pen and driven with a gas canister. I believe it is used on occasions in the graphics industry....I initially saw the equipment and the results of its use in a case whilst I was visiting Hong Kong. The operator had most skillfully removed the denominations from various printed Travelers checks leaving a very smooth surface to the paper with no significant lifting of fibers in the way that an eraser would do. They had then very gently resized the paper in the effected areas (the possible reason for no obviously lifting fibers observed) and reprinted much higher denomination figures (surprise! surprise!). It was very skillfully done and could only be seen under magnification.

Try brake fluid.

One scenario might be if the ink on one side were pigmented (for example gel or a ball pen with pigment only—no dye—very unusual in my experience) and the removed ball pen ink was dye only—and made with rather fugitive dyes. Solvent wouldn't disturb the pigmented ink.

The disappeared paragraph could have been with a disappearing ink? Or one that could be oxidized (light or wet method) and not leave a residue?

Another Examiner Takes a Look

The questioned and known documents Q1, K1a, and K1b were thoroughly re-examined a 2nd time, which essentially completely verified the results of the 1st examination. The 2nd examination again led to the same difficult conclusion—that there was absolutely no evidence of physical or chemical alteration to Q1—in spite of the photocopy specimens.

Thinking Outside of the Box

At this point it was determined that there had to be another explanation as to why the suspect information on the K1 specimens was not present on the Q1 document. It was now time to think outside the document examiner's world (box) to see what reasonable possibilities existed. Although some suggested magic, this was immediately ruled out. In addition, since this was a military hospital, allegations of a government high-tech cover-up were also bantered around. This too was summarily rejected by the 2nd examiner in this matter.

Discussion and Results

The clients were recontacted and asked to provide all the information they could regarding what had occurred the day they made the known copies from the original questioned document. They advised that the entire day was a series of tests and examinations by their main physician and various units within the hospital. As they would move from unit to unit or doctor to doctor, the original medical record would be brought along and filled in as needed. Various other paperwork was also being handled as the day progressed. About 2/3 of the way through the process, 1 of the clients saw the questioned record on a table and decided to make a copy of it at a nearby photocopier, thereby producing K1a and K1b. The Q1 record was then returned and the day's testing completed. At a later date, some questions arose regarding the medications that had been prescribed that day; and when the original Q1 record was compared to the K1 copies, the discrepancy between the 2 was discovered.

Illogical Problem

While standing back and looking at the obverse side of Q1 and the K1a specimen, something was amiss. Why would anyone erase the *unable to do 20 pt cent stand* on the left side of Q1 and the *pain 0/10* on the right side and then rewrite the

pain 0/10 on the left side where they had just made the erasure regarding the *unable to do 20 pt cent stand*? There had to be another explanation.

Three hypotheses were formed based not only on the document examinations but all of the information garnered up until that time:

- A) The clients were lying and had cut and pasted the obverse information and deleted the reverse information from their photocopy.
- B) The hospital or other agency had a method of removing the ink from the questioned documents without leaving any evidence of the removal.
- C) Or perhaps there was a more complex but reasonable scenario:
 - 1) The original Q1 document was completed up to the point before any of the questioned text was written.
 - 2) At that point, another person conducting the testing needed a copy of Q1 for other hospital records, so a double-sided copy of Q1 was made.
 - 3) The original Q1 and copy were then comingled with the other records and appeared identical, 1 being black ink and the other black toner.
 - 4) At some point, the doctor returned and wrote the notation on Q1, *unable to do 20 pt cent stand*, on the left side and the *pain 0/10* on the right side of the photocopy, thinking it to be Q1. The impressions of the entries, *pt unable to do 20 pt cent stand* and *pain 0/10*, were found on a medical record dated May 8, 2003, out of registration with the other impressions resulting from the handwritten entries on the obverse side of Q1.
 - 5) The doctor later returned to write the medication notation on the reverse side of Q1 but again inadvertently picked up the copy and wrote the 6 lines on the reverse side.
 - 6) The client then also inadvertently picked up the copy and recopied it, producing K1a and K1b, then replaced the copy of Q1 with the other papers.
 - 7) Next, the doctor then picked up Q1 and entered the notation *pain 0/10* on the obverse side but this time on the left side of the document, forgetting he had previously entered that notation on the photocopy.

- 8) Eventually the original Q1 made its way to the medical chart file, while the copy went to another unit file somewhere within the hospital.
- 9) Sometime later the original Q1 and the K1 specimens were compared and did not match.

In reviewing this last option with the clients, it appears hypothesis "C" was correct. Although bias from extraneous information is an always-present danger that needs to be understood and properly handled by the FDEs, tunnel vision can also be harmful in our quest to determine the truth of the matter. It must be remembered that in most cases we are investigating and examining the evidence to find the truth, not just addressing a document problem.

References

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- Morris, R.N. (2000). *Forensic Handwriting Identification*. San Diego, CA: Academic Press, p. 128.
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MEDICAL RECORD		CHRONOLOGICAL RECORD OF MEDICAL CARE	
DATE	SYMPTOMS, DIAGNOSIS, TREATMENT TREATING ORGANIZATION (Sign each entry)		
13 MAY 03	WALK IN: c/o sudden onset N/V @		
WALK IN	0930. Vomiting x 4. "Hyperventilating"		
DR. NGUYEN			
ALL	Pt recently returned from the Persian Gulf ~18-19		
CODIFIED	April. Pt saw Dr. Leslie for symptoms of		
	pulmonary coughing. He was dx'd bronchitis &		
	given an inhaler & albuterol & doxycycline		
F=97.6	100mg bid. He started doxycycline 100mg		
P=104	bid. 1 1/2 days ago. Today, he had		
R=24	vomiting in AM & by 1500 was developing		
W=114/86	light headedness, fatigue, nausea. There was		
	a period between 10:30-1500 when he felt		
	good. It is possibly of importance that he		
	didn't start his symptoms until after he		
	was called back from lunch to address some		
	problems at work.		
	o. Pt had "exact same thing" in Kuwait.		
	- Has had poor oral rubbers today:		
	o. Appears physically tired, NAD.		
	Shin dry		
	Gen: alert oriented /		
	at times tearful.		
	p. 9/10		
	unable to do 20 pt could stand		
HOSPITAL OR MEDICAL FACILITY		STATUS	DEPART./SERVICE
SPONSOR'S NAME		SSN/ID NO.	RELATIONSHIP TO SPONSOR
PATIENT'S IDENTIFICATION: (For typed or written entries, give: Name - last, first, middle; ID No or SSN; Sex; Date of Birth; Rank/Grade.)		REGISTER NO.	WARD NO.

CHRONOLOGICAL RECORD OF MEDICAL CARE

Medical Record

STANDARD FORM 600 (REV. 6-97)

Prescribed by GSA/ICMR

FIRM (41 CFR) 201-9.202-1

Appendix 1. Original medical record Q1a (obverse side) dated May 13, 2003, bearing questioned handwritten notations (circled).

DATE	SYMPTOMS, DIAGNOSIS, TREATMENT	TREATING ORGANIZATION (Sign each entry)
	pt was mumbling about his lungs : CTAD stress in Kuwait - How the card : RRR command is treating him abd : S/INT/NO poorly	
	A/P ①. Goutures - Stress related - dehydrated phenesgan 12.5mg IV - 5/13/2003 @ CBC / chem ? 1655-125mg 2L LR IV bolus: - IV @ #27 @ 1650 - transfer to ER for observation pt is still unable to walk & support	
time!	BP 127 - 128/77 p 81	
	TOTAL 1800mL LACTATED RINGERS INFUSED @ 1700 - HM ANALY	

Appendix 2. Original medical record Q1b (reverse side) dated May 13, 2003, lacking questioned handwritten notations (circled area) found on K1b (Appendix 4).

COPY

DATE	SYMPTOMS, DIAGNOSIS, TREATMENT	TREATING ORGANIZATION (Sign each entry)
	lung: CTAD card: PRR abd: S/INT/NO	it was mumbling about his stress in Kuwait - How the command is treating him paraly
	A/P: ①. Goutures - Stress related - dehydrated 2 phenegam 12.5mg IV CBC / chem?	5/13/2003 655-125mg phenegam - 12.5mg by med - 12/13/03 M. K. Khan ICOR, MEH
	2L LR IV bolus: - transfer to ER for observation	- IV #27 @ 1650 11/20/03
time!	pt is still unable to walk & support 1727 - BP 128/77 p 81	
	TOTAL 1800ml LACTATED RINGERS INFUSED @ 1700 - HM (MAY)	
	Meds: Larium for anti malarial Doxycycline 100mg bid } oral Albuterol MDI Robatusin & codeine Phenegam 12.5mg IV	

FPI. LEX. Printed on Recycled Paper

STANDARD FORM 600 (REV. 6-97) BACK

Appendix 4. Photocopy of the reverse side of a medical record K1b dated May 13, 2003, bearing handwritten notations (circled) not found on Q1b (Appendix 2).