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REPORT OF CASE REVIEW
SACRAEMNTO COUNTY CORONER CASE 18-01644
DECEDENT: CLARK, STEPHON A.
DATE OF AUTOPSY: 03/20/2018

MATERIALS REVIEWED:

1. Autopsy report of examination of Stephon A. Clark – 9 pages.
2. Autopsy diagrams – 4 pages.
3. Toxicology and blood alcohol reports from Sacramento County Laboratory of Forensic Services re: postmortem testing of femoral blood, heart blood, vitreous fluid and urine samples from Stephon A. Clark autopsy – 12 pages.
4. Toxicology report from Central Valley Toxicology re: postmortem testing of “blood sample” (source not indicated) from Stephon A. Clark autopsy – 1 page.
5. Autopsy and death investigator's scene photographs from the Sacramento County Coroner's Department (159 images).
6. Sacramento County Sheriff's Department STAR helicopter video (unedited version) of shooting incident leading to death of Stephon A. Clark.
7. Officer bodycam videos (2 separate videos. BW1 and BW2) – unedited releases from Sacramento Police Department.
8. Autopsy diagram from private autopsy examination of Stephon A. Clark by Bennet Omalu, MD dated 3/27/2018.
9. Video of press conference presentation by Bennet Omalu, MD on 3/30/2018, from unedited PBS News release.

ANALYSIS OF ORIGINAL AUTOPSY FINDINGS AS REPORTED:

The original autopsy was performed by Keng-Chih “Kenny” Su, MD. The report is well organized and appears complete. Wound descriptions are concise if somewhat terse, but the wound paths as described and bullet trajectories as shown photographically and as summarized verbally correlate well, with one or two issues left unclear as discussed further below.

Review of autopsy photographs reveals very clear depiction of all external wounds, allowing this examiner to independently conclude that Dr. Su's descriptions of entrance and exit wounds and his conclusion that Clark was struck by 7 bullets is correct.

Photographs of internal injury findings is generally very good, and in most regards allows independent verification of the wound paths and directions of bullet trajectories as well. There are a few areas where the internal wound path photo documentation falls short.

Concerning gunshot wound #1 through the neck, the direction is clearly right to left and somewhat front to back, with a slight downward angle relative to standard anatomic position. Both the surface locations of the wounds as shown photographically, and the use of trajectory probes, confirms this (photos 142-144, 147, 149, 150 and 153 as received by this examiner). However, there are no photos illustrating dissection of the internal wound path. From the location of the trajectory probe it is clear that the wound path passes behind the cervical spine and does not affect any major blood vessels of the neck, all of which would be anterior to the wound path. This supports Dr. Su's assertion that the injury track affects posterior neck soft tissues only.

Gunshot wound #2 is clearly shown to pass right to left and downward with the right arm down along the side (photo 149); any angle forward or to the rear is less clear and could vary with the degree of extension or flexion of the shoulder at the time Clark was struck. Other photos (136 best, also 133, 137, 139, 142 and 143) that show the internal wound findings are somewhat indirect. The humeral fracture is only partly shown,; associated soft tissue hemorrhage appears relatively limited in extent. There are no photographs or verbal descriptions either confirming or directly ruling out any associated injury of axillary or brachial blood vessels in the region of this injury.

The path and associated injuries of gunshot wound #3 are again partly shown photographically (133-136, 146 among others), but the wound path through the soft tissues of the back after a flay dissection is not shown photographically. Judging from the bullet trajectory as shown by probing, there does not appear to be a sufficient forward angle to pass through the spine; this is also indirectly confirmed by photographs 133-136 which do not show any evidence of a wound track through the spine as far posterior as the costovertebral joints (as seen from the anterior intrathoracic view). This seems to rule out injury through the neural arch and spinal cord. The bullet path is described as involving only soft tissues of the back and the left scapula. This description fits with the bullet trajectory shown by the probe and with the lack of photographic evidence of upper thoracic spinal injury. Taken together, these factors make passage of this wound track through the upper thoracic spinal canal anatomically unlikely. However, flay dissection photos of the upper back to illustrate the internal wound path and associated damage would have helped to fully settle this question by independent analysis. The direction of bullet travel right to left, upward and slightly back to front is confirmed.

The paths of gunshot wounds #4 and #5 through the chest are shown photographically (multiple images including 107-109, 114, 118-121, 128-130, 133-135), as are the conclusions of both bullet paths (bullet #4 location in left anterior chest wall, bullet #5

exit). The associated hemothoraces are also shown. The associated bullet trajectories as described by Dr. Su are also confirmed (#4 right to left and slightly back to front; #5 right to left, slightly upward and back to front).

The path of gunshot wound #6 is also well demonstrated in photographs (145,146, 151, 154-156, also 133 and 135). There is clearly associated fracture of the right 10th and 11th ribs and penetration into the spinal canal and spinal cord at T12 with associated spinal subdural hemorrhage. The bullet location within the T12 spinal canal is also clearly shown. The verbal description of the specific injuries does not, however, clearly indicate the apparent spinal cord transection and subdural hemorrhage shown in the photographs, and in that respect leaves out some important detail.

The path of gunshot wound #7 is clearly shown by way of the external wounds and bullet trajectory probe (37, 102, 140, 141, 148) but there is no photographic documentation or written description of internal wound track dissection. Nevertheless, from the bullet trajectory as clearly shown in photographs, there would be no expectation of femoral fracture or disruption of a major neurovascular bundle in the left thigh. The front-to-back and steeply upward angle is also well shown.

Toxicology results as reported by late March, 2018, also have been reviewed. The results are not considered directly germane to the cause of death, and possible significance of the findings is not further discussed in this report.

OPINIONS:

1. It is clear from review of the written report and photographic documentation that Stephon Clark was struck by seven bullets, not by eight as claimed by Dr. Omalu in his press conference statements and as shown on his autopsy diagram. It is obvious that the exit of gunshot wound #5 (Dr. Su's report) was mistaken for an entrance wound on the left side of the chest (Dr. Omalu's diagram). This is a significant error, as it leads to incorrect conclusions regarding the relative positions of the victim and shooters during the event.
2. It is clear from the written report and photographic documentation that the victim died as a result of major visceral and vascular injury in the chest associated with gunshot wounds 4 and 5. These are both clearly lethal shots. There is also significant injury from gunshot 6, which involves the thoracic spinal cord. This would be unlikely to cause a fatal outcome in the short term, however. The possibility of wounds 2 and 3 (right shoulder/arm, upper back) being lethal injuries, as described by Omalu in press conference statements, cannot be supported by the available documentation. The lethal potential of both wounds appears very low. Wound 2 involves obvious fracture and associated hemorrhage from the proximal right humerus, not expected to be lethal. Associated vascular injury cannot be ruled out, but even if present does not involve vessels of enough bleeding capacity to cause short term fatality.

There is also no photographic evidence suggesting that wound 3 passed through the upper thoracic spinal cord, and even though there is no direct wound path dissection, the illustrated trajectory supports Dr. Su's conclusion that there was injury only to soft tissues of the back and to the left scapula without spinal injury as asserted by Omalu in his press conference statements.

3. It is clear from the written and photographic documentation that gunshot wound 7 in the left thigh was delivered from the front. It is also clear that the other wounds were primarily to Clark's right side, some being directly to the side (#1, #2, #4) and others being to the right side of the back (#3, #5, #6). The predominant right-to-left angle of wounds 1, 3, 4, 5 and 6, along with the slight front-to-back angle of wound 1, do not support the assertion that Clark was shot primarily from behind as asserted by Omalu in his press conference statements.
4. Frame-by-frame analysis of the officers' bodycam videos is only partly informative in correlating gunshot wound locations with relative positions of officers and decedent. BW1 shows Clark facing the officers from behind the picnic table, under the patio cover, at the 7:46 to 7:47 timeline; his position is subsequently obscured by blur as a result of officer movement and then blocked by the other officer's positioning. Video BW2 confirms Clark's position facing officers behind the picnic table at 8:02. His subsequent position and movements are again blurred by officer movement. The face-on position at this point in the incident does help establish that there was an initial face-on confrontation while Clark was under the patio cover and could not be seen on the STAR helicopter video. Subsequent positioning and movement, however, cannot be analyzed from the bodycam videos and requires correlation with the helicopter video.

Review of the STAR helicopter video allows correlation of the locations of officers and decedent during the remainder of the incident, with the locations and directions of the gunshot wounds. As officers are stopped at the northwest corner of the house, Clark can be seen walking between the picnic table and the house, toward the officers' position (1:02 to 1:04); he is facing their location during this short interval. During this time a flash can be seen from the officers' position, consistent with a shot being fired. Clark can be seen then turning west around what appears to be a picnic table on the patio, at which time his right side becomes exposed to the officers' position (1:04). Very quickly Clark is can be seen taking a crouching position and then going down, first to a hands-and-knees position, head facing west and right side to the north, exposed to the officers' position. During this part of the event, more flashes indicate gunshots from the officers' position (1:04+ to 1:05). Clark then quickly collapses to a prone position, head still west and right side facing north, with elbows out. Additional flashes can be seen during this part of the event, both from the officers' position and from beyond Clark's position on the patio, indicating further gunfire and four bullet ricochets from the patio (1:05+ to 1:09). Once he is in a hands-and-knees position, Clark's back is partly exposed to the officers' position and his back becomes more exposed to the officers' gunfire once he is prone.

This leads to the conclusion that gunshot wound 7 to the left thigh was most likely the first shot, sustained either as Clark was walking toward the officers' position with his left thigh raised, or possibly in the crouching position. Considering the officers' shooting position, the upward wound path through Clark's left thigh indicates that it was extended from the hip so that, at the time the bullet struck, his thigh was roughly parallel to the ground rather than perpendicular to the ground as it would be in a full standing position. For this wound to have been sustained after he was already down, in a prone position, would require a ricochet shot. For a ricochet bullet from the officers' position to then travel directly front-to-back into his thigh at the upward angle shown at autopsy, and not create a very atypical entrance wound (clearly not shown by the autopsy) from the bullet being already deformed, is considered an untenable possibility. However untenable, this appears to be Omalu's conclusion as to how this injury was sustained, from his viewing of the video evidence, as related at the press conference.

The fact that the other gunshots hit Clark primarily from right to left, is also very well explained by correlation of the documented autopsy findings and Clark's position as shown in the STAR helicopter video. At no time does the video show Clark to have the left side of his body facing the officers' position as shots are fired, nor does the video show him turning around from a left-facing position, still upright, and putting his back squarely toward the officers as there were further shots fired which then dropped him. The video evidence provides clear refutation of Omalu's description of Clark's positioning during the shooting as described in his press conference statements.

5. The cause of Stephon Clark's death is multiple gunshot wounds. The mechanism of death involves a combination of hemorrhagic shock, respiratory impairment due to lung collapse from hemopneumothorax, and impairment of cardiac activity by a large, direct injury to the left ventricular wall. Interval between injury and death would be several minutes as these factors worsened to the point of irreversible cessation of cardiorespiratory activity.



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