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## A rare Case of accidental Death simulating Stabbing

By

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With 3 Figures in the Text

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The following case deserves publication, in my opinion, because of the unusual circumstances surrounding the death, which simulated stabbing; and because *air bubbles* were present *in the blood clots* in the chest cavity, as described by K. WALCHER.

### History

The Police were summoned to a Johannesburg gold mine to investigate what was described to them as a mysterious case of stabbing. The deceased was found at an underground ventilation door where he had been working *alone*. The only visible injury was a small incised wound immediately above the inner end of the right clavicle. Nobody saw how the deceased had received this injury. The body was removed to the Mortuary where an autopsy was performed immediately.

### Post-mortem Examination

The body was that of a well built adult native male, aged 25 years, 5 feet 10 inches in height, and weighing 159 lbs.

An incised wound,  $\frac{3}{4}$  (of an inch) in length, was present on the upper part of the right side of the chest,  $\frac{1}{2}$ " above the clavicle and 1" to the right of the right sterno-clavicular joint. The wound sloped downwards, passing behind the clavicle into the right chest cavity. The margins of the wound were rounded (Fig. 1).

The chest was X-rayed as a routine, and a foreign body noted in the upper part of the right chest cavity, over the articulation of the third rib (Fig. 2).

On opening the chest, the right pleural cavity contained much dark red fluid an clotted blood (1050 ccs.). Included in the clots were numerous small air bubbles, similar to the condition described by K. WALCHER.

On dissection, the wound was found to pass through the right innominate vein and pleura and mediastinum, and penetrate the apex of the right lung, where a small piece of metal was found. The opening in the mediastinum was valve like in character, shutting off the further entrance of air into the chest cavity.

The metal fragment was found to fit exactly into a defect in the head of a 16 lb. hammer with which the deceased had been breaking stones at the time of his death (Fig. 3). *The cause of death* was internal haemorrhage due to penetration of the right lung with a fragment of metal dislodged from the hammer-head.

All other organs healthy but pale.



Fig. 1. Entrance of the metal fragment

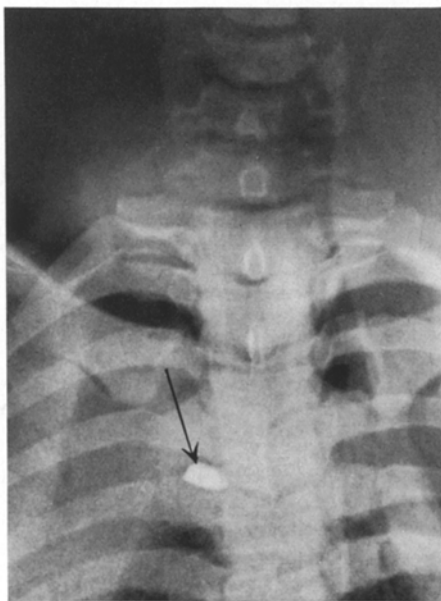


Fig. 2. Piece of metal in the apex of the right lung

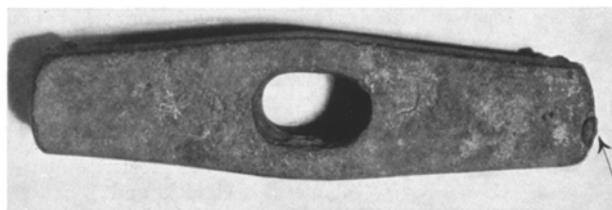


Fig. 3. Defect 16 lb. hammer with which the deceased had been breaking stones at the time of his death

### Comment

A case is reported in which death was at first thought to be due to stabbing. An autopsy, aided by radiological investigation, showed that death was due to a chip of metal from a hammer penetrating the right lung. The *intravital* inclusion of air bubbles in the blood clots, as described by WALCHER, was present in this case. WALCHER observed inclusions of air bubbles in a case of haemopneumothorax following an arrested bullet which had passed through both upper lobes, the superior vena cava, the trachea and the descending aorta. His case died within a quarter of an hour after receiving the injury, and the autopsy was held 48 hours after death. He found 1100 ccs. of fluid blood

in the right pleural cavity and several clots swimming on the surface and showing a dense infiltration with small bubbles of air. These included air bubbles were found only in clots and not in the fluid portion of the blood. A similar picture was present in my case. One could rule out the possibility that the air came into the clots post-mortem as a result of decomposition, as the autopsy was performed two hours after death. Also the body was not moved extensively before autopsy. The fact that the air bubbles were present only in the clots and not in the fluid portions of the blood also points to their ante-mortem origin.

It is singular that in numerous cases of penetration of the chest wall, due to bullet and stab wounds, included air bubbles in the blood clots were *not previously* observed. In my experience I have dealt with over two thousand such cases—hence the extreme rarity. The probable reason is that the usual bullet or stab wound of the chest is a gaping wound allowing the free entry of air into the chest cavity. I think the conditions necessary for the presence of air bubbles in the clots is a valve-like wound in the chest wall which shuts out the atmospheric pressure, thus allowing the air to rise from the lacerated lung tissue through the blood in the chest cavity. BENEKE has shown that blood coagulates quickly in the corpse with the formation of red clots. The air bubbles are thus trapped while rising through the coagulating blood in the chest cavity and become included in the clots. Another observation is that included air bubbles in clots in the chest cavity indicates laceration of lung tissue.

### Summary

1. A case is reported which, although on superficial examination it presented the typical signs of death due to stabbing, a careful post-mortem examination revealed that death was due to an unusual accident.
2. It demonstrates the great value of routine radiological examination as a procedure in medico-legal work.
3. Included air bubbles were observed in the coagulated blood in the chest cavity. A similar condition was described by WALCHER.
4. It appears to be an extremely rare finding—the inclusion of air bubbles in the coagulated blood in the chest cavity.

### Reference

WALCHER, K.: Über intravitale Einschließung von Luftblasen in Gerinnsel. Dtsch. Z. ges. gerichtl. Med. **21**, 147 (1933).

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