



Manga and anime in medical education: leontiasis ossea in 'Black Jack'

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Abstract

'Black Jack', the medical manga (Japanese comic/graphical novel) by the widely acclaimed godfather of manga, Ozamu Tezuka, follows the dramatized story of the unlicensed surgeon. It spans many manga volumes, and many episodes in the corresponding animated series (commonly referred to as anime), with a key focus on Black Jack's superior, sensationalized, surgical abilities. This brief review focuses on the presence of a patient with leontiasis ossea at the beginning of the 'Black Jack 21' anime series and highlights the use of media such as manga and anime in medical education.

Keywords: Chemical Pathology; Education, medical, undergraduate; Leontiasis Ossea; Medical Manga; Surgery.

The term 'manga' refers to Japanese artwork and stories presented in the form of comic books; covering a wide spectrum of genres, manga appeals to a broad range of age groups.[1] Riveting story lines combined with the use of the pictorial medium has earned some manga great popularity with subsequent translation into numerous other languages.[2] The main story illustrations are typically, but not exclusively, printed in black and white. Amongst the many genres available, one also finds those that

deal with science fiction, and some with medical themes.

Ozamu Tezuka is widely acclaimed as the godfather of manga.[3] Of great interest is the fact that having received medical instruction, he put it to good use in injecting a degree of medical realism into one of his popular manga, 'Black Jack'.[4] Figure 1 shows the cover of the first volume. In the series, it is worthy of note that the author deviates at times from what is medically plausible, using in

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Figure 1: Cover of the first volume of the Manga, 'Black Jack'

Source:
[https://en.wikipedia.org/wiki/Black_Jack_\(manga\)](https://en.wikipedia.org/wiki/Black_Jack_(manga))

effect some form of 'poetic license'. An example of this includes an instance where Black Jack, who is an unlicensed, though heroic, surgeon, continues operating on a patient in pitch darkness after a power cut when terrorists destroy the hospital generator.[4]

Although 'Black Jack' centers mostly on superior, sensationalized surgical skill, given the main character is a surgeon, there are depictions related to medical arenas as well. At the very beginning of the animated, televised series (also called anime), Black Jack 21, the main character, 'Doctor' Black Jack, encounters a case of leontiasis ossea.[5] Leontiasis ossea is a rare medical manifestation typified by overgrowth of the bones in the head that result in a lion-like facies. It is usually associated with diseases such as Paget's disease, hyperparathyroidism, renal osteodystrophy and fibrous dysplasia.[6-9] Black Jack's miraculous intervention in the case that presents to him (Figure 2), the stated surgical procedure he uses, and the complete

resolution of the craniofacial deformation deviates from standard medical expectation, but is in line with the spirit of the series itself.

Medical conditions that surface in entertainment media, such as in manga and anime, as illustrated here, are significant in that they introduce medical students and learners of other health professions to rarer medical conditions which they would probably never encounter in the clinics. I chose this instance specifically from many others in the series, since it could serve as a discussion point for the underlying conditions which are associated with leontiasis ossea. In real life, this condition would require input from a chemical pathology laboratory to exclude the presence of uraemia, hyperparathyroidism or Paget's disease.[6-9] A number of clinical biochemistry parameters would also need to be measured in cases where total parathyroidectomy with autotransplantation is



Figure 2: Leontiasis ossea as shown in the Manga, 'Black Jack'

Source: http://osamu-tezuka.wikia.com/wiki/File:Black_Jack_Lion-Face_Disease.PNG

attempted,[10] or when intraoperative parathyroid hormone monitoring is employed.[11]

To generate still further interest in learning about leontiasis ossea, students could be apprised of the fact that, apart from its mention in 'Black Jack', the condition has other prominent associations. Rudolf Virchow is often acclaimed as the 'father of modern pathology', and an eponymous medical term for leontiasis ossea was once

'Virchow's disease'. [12] From a medico-anthropological perspective, many believe that the renowned limestone statue, the Sphinx of Giza, may have represented an individual who had leontiasis ossea.[13]

Certainly, the use of visual media to supplement a story, as is done in manga and anime, could be used as triggers for discussion and learning and should be considered in the wider scope of the medical humanities and medical education.

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