



Retrospective Analysis of Different Cosmetic Methods in 53090 Dromedary Camels

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ABSTRACT

This study was designed to retrospectively report and analyze different cosmetic methods detected for tampering in dromedary camels that were presented for the King Abdulaziz Camel Festival (KACF). The medical records of 53090 camels (*Camelus dromedarius*) were retrospectively evaluated from February 4th, 2019 to January 12th, 2023 during the events of the 3rd to 7th seasons of the beauty shows of the KACF. Camels having different forms of tampering were examined by inspection primarily. Following, suspected camels were screened by diagnostic imaging including ultrasound, thermography and radiography, and by laboratory evaluation of testosterone and growth hormones. During the 3rd, 4th, 5th, 6th, and 7th KACF seasons, 11912, 11526, 4635, 12634, and 12385 camels were respectively examined and 4 main methods for tampering were detected. It included injection of cosmetic fillers, stretching and binding of lips and injection of hormones. The pattern of filler injection was increased from counted 0.126 % camels in the 3rd season to reach 0.606% camels during the 7th KACF activities and showed significant difference among various seasons (χ^2 Value=111.258; $P<0.001$). Stretching of lips was also increased from only 0.034% cases at the 3rd to 2.212% camels at the 7th season (χ^2 Value=526.355; $P<0.001$). In a similar pattern, binding of lips was increased from 0.025% camels during the 3rd to 0.525% camels during the 7th season (χ^2 Value=129.906; $P<0.001$). Uses of hormones were also increased sharply from 0.008% camels at the 3rd to 0.129% camels during the 7th season. Collectively, overall tampering methods were increased from counted 0.193% camels in the 3rd season to reach 3.496% camels during the 7th KACF activities and showed significant difference among various seasons (χ^2 Value=508.898; $P<0.001$). In conclusion, a dramatic increase in tampering ways in dromedary camels presented to the KACF were noted. Therefore, a great challenge should be paid to the diagnosis of these methods that harm this creature, and even may cause undesirable permanent complications. Attention should also be paid to the new cosmetic methods that are discovered annually in camel beauty contests.

Key words: Animals, diagnostic imaging, radiography, thermography, ultrasonography.

INTRODUCTION

Indications for camel breeding is numerous. It is used mainly in the past for transportation and also for carrying different goods from area to another. In addition, they are reared for the purpose of obtaining their milk, meat and wool. Competitions for race camels are also held in different countries all over the world. Conclusively, camels represent a cultural, social and economic connections to humans in the Arab region throughout

different ages. The people of the Arabian Peninsula relied on the gifts of nature in a greater way, as camels were present in all their details in his daily life (Khan 2022).

During the past 10 years and because camels are beloved by peoples in the Arabian Peninsula, beauty shows were held annually in some countries such as Saudi Arabia, United Arab Emirates, Qatar and Kuwait. In Saudi Arabia, the largest camel show named King Abdulaziz Camel Festival (KACF) is being held annually from December 1st until nearly the middle of January the next

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year in the desert of Al-Dahna, Riyadh. Thousands of camels are presented to this place from different regions from Saudi Arabia and also from different Gulf countries including Sultanate of Oman, United Arab Emirates, Qatar, Bahrain and Kuwait. Camels also from Iraq and Egypt are presented during recent years. (Tharwat and Al-Hawas 2024).

Some months before the start of the KACF completions, a timetable schedule is designed by the Camel Club authority in Saudi Arabia and is then provided to the public. This timetable contains a daily and different competitions during the KACF show for camels from different ages. Finally, the most beautiful single or group of camels are selected by the judge committee and announced to public and attendees. Finally, huge prizes are awarded to the winners of camels. After the show end, a large ceremony was held and the King of Saudi Arabia or the crown prince attended and they honored the winners. Because of this great honor that the winners of the peace treaty bestow upon the Custodian of the Two Holy Mosques and his Crown Prince, some camel owners may resort to some cosmetic procedures to achieve this great honor (Tharwat and Al-Hawas 2024).

To detect cosmetic methods in camels presented at the KACF, the authorities of Camel Club organized a medical committee that are formed by different specialists in camel diagnostic imaging including ultrasonography, thermography and radiography, and also in hormonal analysis. The main goal of the medical committee is to detect tampering in camels and to confirm it. Strict measures will be finally issued by the KACF authorities either by fining the participant of 100.000 SAR (26.600 USD) for each tampered camel or even exclusion of his camels from the competitions (Tharwat and Al-Hawas 2021; Tharwat et al. 2021a,b; Tharwat and Al-Hawas 2023; Tharwat 2024; Tharwat and Al-Hawas 2024).

This study was designed to retrospectively report and analyze different cosmetic methods used for tampering in 53090 dromedary camels that were presented for the KACF during 5 successive seasons (3rd, 4th, 5th, 6th, and 7th season) and held during 2019-2023.

MATERIALS AND METHODS

Ethical approval

Procedures for approval of the Institutional Animal Ethics Committee's was not carried out as there was no contact with camels and there were no invasive methods that would harm the animals.

Study design and criteria for inclusion of camels

The records of the medical committee of a total number of 53090 dromedary camels (*Camelus*

dromedarius) were retrospectively evaluated in this report. Medical records were investigated from February 4th, 2019 until January 12th, 2023 during holding the events of the third, fourth, fifth, sixth and seventh seasons of the beauty shows of the King Abdulaziz Camel Festival (KACF) in Riyadh, Saudi Arabia. Detectable camels with different types of tampering during each event of the camel festival were included in this study. Different methods for participation in the activities of camel beauty festival and the ways of detection of tampering in camels were reported recently (Tharwat and Al-Hawas 2024).

Examinations and detection if tampering in camels

Camels having different forms of tampering were examined by several methods. First, animals were inspected from a distance. Any camel shows abnormalities on physical examination will be allowed to lie down and then examined on close distance. If it is suspected to have a form of tampering, it is then examined by ultrasound, thermography and if needed, by radiography as we reported (Tharwat and Al-Hawas 2021; Tharwat et al. 2021a; Tharwat and Al-Hawas 2023; Tharwat 2024; Tharwat and Al-Hawas 2024). If the dulla is enlarged and sometimes protruded, the clitoris is enlarged and the head, neck and rest of the body is outstandingly enlarged, serum sample was collected and the testosterone and growth hormone were estimated in samples (Tharwat et al. 2021b; Tharwat 2023).

Statistical Analysis

Chi-Square test was applied using Minitab Release 13.1 (Minitab 2000) to the difference between various tempering methods at various seasons of KACF. Significance level was considered at $P < 0.05$.

RESULTS

During the 3rd, 4th, 5th, 6th, and 7th KACF seasons, 11912, 11526, 4635, 12634, and 12385 camels were respectively examined. During the fifth season of the KACF camel show, only 4635 camels were examined because of the abrupt ending of the festival because of the Corona pandemic outbreak (Table 1).

Four main methods for tampering were detected during the 5 seasons of the KACF. It included the injection of cosmetic fillers, stretching of lips, binding of lips and injection of hormones. The injected lips appeared larger than normal and pendulous, the stretched lips appeared enlarged, protruded and pulled outward, the tied lips appeared extended and the feeling of its tips was harder, and in the hormone injected camels, the dulla was sometimes protruded and the clitoris was enlarged (Fig. 1).

Table 1: Total numbers of examined camels during 5 successive seasons of camel beauty shows (2019-2023)

| Season | Start day | End day | Duration (day) | Examined camels |
|-----------------|------------|------------|----------------|-----------------|
| 3 rd | 4/02/2019 | 20/03/2019 | 45 | 11912 |
| 4 th | 29/11/2019 | 16/01/2020 | 47 | 11526 |
| 5 th | 29/11/2020 | 28/12/2020 | 29 | 4635 |
| 6 th | 29/11/2021 | 12/01/2022 | 42 | 12632 |
| 7 th | 29/11/2022 | 12/01/2023 | 44 | 12385 |
| Total | | | | 53090 |



Fig. 1: Main cosmetic methods for tampering during the 3rd to 7th seasons of the King Abdulaziz Camel Festival (2019-2023). The injected lips appeared larger than normal and pendulous (A), the stretched lips appeared enlarged, protruded and pulled outward (red arrow) (B) and the tied lips appeared extended and the feeling of its tips was harder (blue arrow) (C). In the hormone injected camels, the dulla was protruded (white arrow) as in this yearling female camel (D).

In pattern of filler injection was increased from 0.126% camels detected in the 3rd season to 1.316% animals during the rounds of the 5th season (Table 2). Stretching of lips was also markedly increased from 0.034% cases at the 3rd season to 2.212% camels at the 7th KACF season. In a similar pattern, binding of lips was increased from 0.025% camels during the KACF 3rd season to 0.525% animals during the 7th season. Uses of hormones were also sharply increased from 0.008% camel detected at the 3rd season to 0.129% animals during the 7th season activities. Statistical analysis by Chi-square test revealed significant differences ($P < 0.001$) from 3rd to 7th seasons in various tampering patterns such as filler injection (χ^2 Value=111.258), stretching of lips (χ^2 Value=526.355), binding of lips (χ^2 Value=129.906), and uses of hormones (χ^2 Value=28.402) at KACF. Collectively, overall tampering methods (Table 2) were increased from counted 0.193% camels in the 3rd season to reach 3.496% camels during the 7th KACF activities and showed significant difference among various seasons (χ^2 Value=508.898; $P < 0.001$).

In addition, during the activities of the 4th and 7th rounds of the KACF 25 and 11 camels were found to be injected with perinasal fillers. Therefore, the total numbers of camels with different types of tampering during the five KACF seasons (3rd, 4th, 5th, 6th, 7th) were counted to be 783 animals.

DISCUSSION

In human medicine, females and even males carry out different cosmetic methods. Of these ways, using filler materials which may be absorbable or not (Cassuto et al. 2021; Mandal and Gama 2021; Safran et al. 2021). These materials should be accepted by the US Food and Drug Administration authorities because its use can cause unwanted drawbacks (Wang et al. 2021; Samizadeh and De Boule, 2023). Of these undesirable drawbacks are tissue inflammation, hypersensitivity, ecchymosis, local mass formation, edema, granulomatous reaction, fistulations, abscess formation, tissue necrosis and loss of vision (Shahrabi-Farahani et al. 2014; Kassir et al. 2020). Similar, in camel medicine, complications are also reported as a result of applying different cosmetic ways. These complications may include local tissue inflammation, formation of abscess lesions, skin fibrosis, local visible masses, nodule formations, skin necrosis, cutaneous gangrene and granulomatous local skin reactions (Tharwat and A-Hawas 2021; Tharwat and Al-Hawas 2024).

In dromedary camels, different methods are currently used in both sexes to be used in camels in beauty shows especially at the KACF. These methods are carried out sometimes by unqualified persons to increase the beauty of camels participated in beauty contests. Of these methods,

Table 2: Number and percent of different cosmetic methods during the 3rd to 7th King Abdulaziz Camel Festival (2019-2023)

| Season | Examined camels | Filler Injection | | Lip Stretching | | Lip Binding | | Hormones Injection | | Overall Tampering | |
|-----------------|-----------------|------------------|-------|----------------|-------|-------------|-------|--------------------|-------|-------------------|-------|
| | | No. | % | No. | % | No. | % | No. | % | No. | % |
| 3 rd | 11912 | 15 | 0.126 | 4 | 0.034 | 3 | 0.025 | 1 | 0.008 | 23 | 0.193 |
| 4 th | 11526 | 58 | 0.503 | 12 | 0.104 | 4 | 0.035 | 2 | 0.017 | 76 | 0.659 |
| 5 th | 4635 | 61 | 1.316 | 10 | 0.215 | 4 | 0.086 | 2 | 0.043 | 77 | 1.661 |
| 6 th | 12632 | 40 | 0.317 | 85 | 0.673 | 11 | 0.087 | 2 | 0.016 | 186 | 1.472 |
| 7 th | 12385 | 75 | 0.606 | 274 | 2.212 | 65 | 0.525 | 16 | 0.129 | 433 | 3.496 |
| | χ^2 Value | 111.258 | | 526.355 | | 129.906 | | 28.402* | | 508.898 | |
| | P Value | 0.001 | | 0.001 | | 0.001 | | 0.001 | | 0.001 | |

*1 cell with expected counts less than 5.0

filler and Botox injections, ligation and/or stretching of lips, testosterone and/or growth hormones injections (Tharwat and Al-Hawas 2021; Tharwat et al. 2021a; Tharwat et al. 2021b; Tharwat and Al-Hawas 2023; Tharwat 2024). Experienced filed veterinarians can detect different methods of cosmetic ways in camels by contact clinical examination, use of diagnostic imaging techniques including radiography, thermography and ultrasonography. Estimation of serum levels of the hormones testosterone and growth hormones can also be used to detect tampering in camels (Tharwat and Al-Hawas 2021; Tharwat et al. 2021a; Tharwat et al. 2021b; Tharwat and Al-Hawas 2023).

In dromedary camels, the application of ultrasound has been used on a large scale over the last years in sound (El-Tookhy and Tharwat 2012; Tharwat et al. 2012a,b,c; Tharwat, 2013a), or unhealthy camels (Tharwat et al. 2012d,e; Tharwat, 2013b; Tharwat et al. 2018a,b; Tharwat, 2019; Tharwat, 2020a,b,c; Tharwat, 2021b; Tharwat and El-Tookhy, 2021; Tharwat and Al-Hawas; 2021; Tharwat, 2021a; Tharwat et al. 2023; Tharwat, 2024; Sadan et al. 2024). The effectiveness of thermography has been reported also in camel beauty shows through detection of different cosmetic procedures (Tharwat et al. 2021a; Tharwat and Al-Hawas 2023). Moreover, radiography was used for the detection of injected fillers at the nasal region (Tharwat and Al-Hawas 2024).

In this retrospective study, 53090 dromedary camels were presented to the KACF camel beauty contest at the third, fourth, fifth, sixth and seven seasons that extended from 2019 until 2023. In the present study, principal ways of tampering were filler material injections, extending and ligation of lips and hormones injections. Results showed that all the 4 main cosmetic methods had increased dramatically from third until seventh seasons. Filler injection was increased significantly from 0.126 % camels in the 3rd season to reach 0.606% camels during the 7th KACF activities (χ^2 Value=111.258; P<0.001). Stretching of lips was also increased from only 0.034% cases at the 3rd to 2.212% camels at the 7th season (χ^2 Value=526.355; P<0.001). Binding of lips was similarly increased from 0.025% camels during the 3rd to 0.525% camels during the 7th season (χ^2 Value=129.906; P<0.001). Uses of hormones were also increased from 0.008% camels at the 3rd to 0.129% camels during the 7th season. Overall tampering methods were increased collectively from counted 0.193% camels in the 3rd season to reach 3.496% camels during the 7th KACF activities and showed significant difference among various seasons (χ^2 Value=508.898; P<0.001). Many reasons are expected due to this increase in cosmetic methods in dromedary

camels. Of these reasons are the outstanding prizes that are awarded to the winners, good reputation among the Arab tribes and attending the final festival ceremony and meeting the King of Saudi Arabia or the Saudi Crown Prince, which is considered the most awarded prize for the competitors in this festival (Tharwat and Al-Hawas 2024).

Conclusion

This study showed a dramatic increase in tampering ways in dromedary camels presented to the KACF. A great challenge should be paid to the diagnosis of these methods that harm this creature, and even may cause undesirable permanent complications. Attention should also be paid to the new cosmetic methods that are discovered annually in camel beauty contests such as pigmentation and depigmentation of wool coat and ear clipping. Finally, training programs should be given to field practitioners to be aware of clinical and laboratory methods of detecting tampering in dromedary camels.

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Conflicts of interest statement

The authors have no conflicts of interest to disclose.

Author contributions

MT and AA: concept and design the proposal. MT and AA: performed practical work. MS: wrote the manuscript draft. AAA: performed revision and editing. All authors revised and approved the final manuscript.

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