BRIEF OBSERVATION

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The Autopsy of Chicken Nuggets Reads "Chicken Little"

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ABSTRACT

PURPOSE: To determine the contents of chicken nuggets from 2 national food chains.
BACKGROUND: Chicken nuggets have become a major component of the American diet. We sought to determine the current composition of this highly processed food.
METHODS: Randomly selected nuggets from 2 different national fast food chains were fixed in formalin, sectioned and stained for microscopic analysis.
RESULTS: Striated muscle (chicken meat) was not the predominate component in either nugget. Fat was present in equal or greater quantities along with epithelium, bone, nerve, and connective tissue.
CONCLUSION: Chicken nuggets are mostly fat, and their name is a misnomer.
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KEYWORDS: Chicken; Fast food; Fat; Obesity

Mississippi leads the nation's epidemic of obesity, and Jackson, Mississippi, the state capitol, is the epicenter.[1] The metropolitan area, which has just over a half million citizens, boasts 50 different companies offering varying numbers of fast food outlets.[2] Restaurant food restrictions are prohibited by state law.[3] Because chicken nuggets are a favorite of children, and the obesity epidemic now extends to them as well, we thought knowing a bit more about the content of the contemporary chicken nugget could be important.

CLINICAL SIGNIFICANCE

- Fast food chicken nuggets have become a staple of the American diet.
- The composition of the present day chicken nugget is not well understood.
- Our histopathological analysis of representative chicken nuggets shows that chicken is not necessarily a major component.
- The term "chicken nugget" is a misnomer.

MATERIALS AND METHODS

We bought an order of chicken nuggets over the counter at each of 2 national fast food chain restaurants near our academic health center in Jackson, Mississippi. One nugget was selected at random from each box and fixed in formalin, processed for histology, and embedded in paraffin. Sections were cut with a microtome and stained with hematoxylin and eosin (H&E) or trichome stain for microscopic evaluation. Representative sections are shown in the Figures.

RESULTS

The nugget from the first restaurant (**Figure 1**) was composed of approximately 50% skeletal muscle, with the remainder composed primarily of fat, with some blood vessels and nerve present (**Figure 1A**, trichome stain, 40×). Higher-power views showed generous quantities of epithelium and associated supportive tissue (**Figure 1B**, H&E, 400×), including squamous epithelium from skin or viscera (**Figure 1C**, H&E, 100×).

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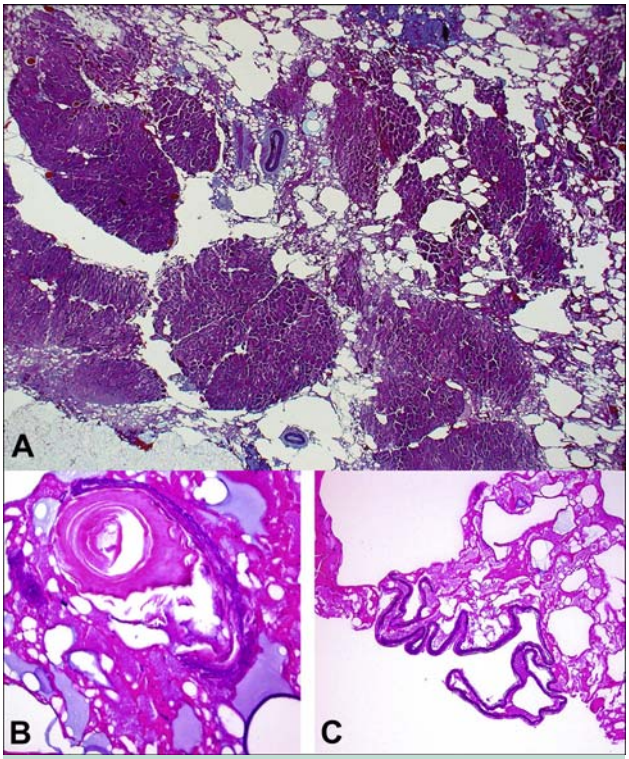

Figure 1 Nugget from the first restaurant. (**A**) Trichome stain, 40X; (**B**) hematoxylin and eosin, 400X; (**C**) hematoxylin and eosin, 100X.

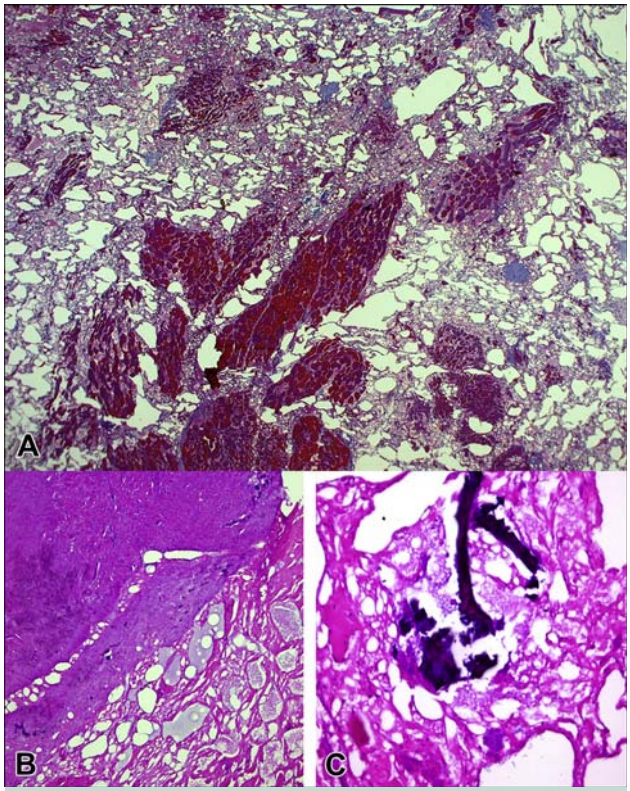

Figure 2 Nugget from the second restaurant. (**A**) Trichome stain, 40X; (**B**) hematoxylin and eosin, 400X; (**C**) hematoxylin and eosin, 400X.

The nugget from the second restaurant (**Figure 2**) was composed of approximately 40% skeletal muscle (**Figure 2A**, trichome stain 40×). Here too, there were generous quantities of fat and other tissue, including connective tissue (**Figure 2B**) and bone spicules (**Figure 2C**, both stained with H&E, 400×).

DISCUSSION

Food science has allowed modification of a superb source of lean protein into a variety of processed poultry products marketed as inexpensive convenience foods that are high in salt, sugar, and fat.[4] Available information suggests that the average composition of chicken nuggets from restaurant chain 1 is 56% fat, 25% carbohydrates, and 19% protein, and from restaurant chain 2 is 58% fat, 24% carbohydrates, and 18% protein.[5]

Our analysis confirms that chicken nuggets available at national fast food chains operating in a state with an epidemic of obesity and obesity-related disease remain a poor source of protein and are high in fat. Medical professionals should advise patients of the limited nutritional value of many processed foods, including this product.

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