

Evaluation of eating habits in a group of children affected by recurrent chalazion

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Abstract. *Introduction and purpose:* Chalazion is a frequent ocular pathology even in paediatric age. This pathology may be correlated with incorrect eating habits, particularly with excessive consumption of saturated fats and simple sugars. The present work aimed to evaluate a possible correlation of eating habits with the manifestation of the pathology in a group of paediatric subjects with recurrent chalazion. *Materials and methods:* In 29 children aged between 1 and 14 years with recurrent chalazion, their eating habits were analysed using a detailed and specially prepared questionnaire. *Results:* excessive consumption of sausages, sugary drinks, and sweets and low fish consumption. However, the consumption of fruit and vegetables and complex carbohydrates is normal.

Key words: chalazion, eating habits, food questionnaire

Introduction

The chalazion is a chronic sterile lip granuloma (1,2). It can occur on both the upper and lower eyelids in association with diseases causing meibomian gland dysfunction and chronic blepharitis. There are different types of chalazion, the deep one is caused by obstruction of a meibomian gland, while the superficial one is caused by inflammation of a Zeis gland (marginal chalazion). Chalazion are self-limiting, although they can develop chronic complications. In these cases, surgery is inevitable. The most common symptoms generated by the onset of chalazion are localized swelling of the eyelid with conjunctival hyperaemia, as well as inflammation of the conjunctiva (3,4). If it reaches a significant size, the chalazion can cause astigmatism due to the pressure exerted on the cornea. The appearance

of chalazion has been associated with factors such as acne rosacea, seborrheic dermatitis, diabetes, and blepharitis (5). The correlations with intestinal functionality should not be underestimated. Even a period of high stress can favour the onset of the disorder. (6,7). As far as treatment is concerned, hot water compresses with a soothing effect are indicated as useful.

The specialist may decide on an injection of a corticosteroid with a reabsorption effect and, in more serious cases, drainage or surgical removal of the lip granuloma may be necessary (8,9).

There are no clear indications in the literature on the triggering causes of chalazion, despite it being one of the most common eyelid disorders. This study aims to find a possible relationship between the appearance of chalazion and eating habits in a group of paediatric children with recurrent chalazion.

Materials and methods

For the study, an appropriate and detailed dietary questionnaire (Table 1) was provided to the parents of 29 children affected by chalazion, who arrived at the ophthalmology clinic of the San Paolo Hospital

in Milan, Italy. The children (8 males and 21 females) were aged between 1 and 14 years, in the year 2023 (Table 2). All parents gave their informed consent for completing the questionnaire. All questionnaire responses were tabulated and calculated with Microsoft Excel (®).

Table 1. Questionnaire.

Questions	% answers				% Total
	1-3 years	4-6 years	7-10 years	11-14 years	
1. WHAT MEALS DO YOU CONSUME DURING YOUR STANDARD DAY?					
Breakfast, snack, lunch, snack, dinner	100%	44%	56%	11%	66%
Breakfast, lunch, dinner	0%	0%	0%	0%	0%
Breakfast, snack, lunch, dinner	0%	10%	0%	50%	10%
Breakfast, lunch, snack, dinner	0%	50%	17%	25%	24%
Breakfast and dinner	0%	0%	0%	0%	0%
Lunch and dinner	0%	0%	0%	0%	0%
Other (specify)	0%	0%	0%	0%	0%
2. DO YOU HAVE BREAKFAST?					
Every morning	89%	70%	100%	25%	76%
Quite often (specify)	0%	10%	0%	50%	10%
Sometimes	11%	20%	0%	25%	14%
Almost never	0%	0%	0%	0%	0%
Never	0%	0%	0%	0%	0%
3. HOW IS YOUR LUNCH COMPOSED?					
First	28%	32%	27%	50%	31%
Second	28%	23%	23%	13%	24%
Vegetable side dish	25%	19%	14%	25%	20%
Bread	9%	6%	18%	13%	11%
Fruit Sweet	9%	16%	18%	0%	13%
Coffee	0%	3%	0%	0%	1%
Other	0%	0%	0%	0%	0%
4. HOW IS YOUR DINNER COMPOSED?					
First	21%	24%	12%	33%	22%
Second	29%	32%	24%	33%	29%
Vegetable side dish	25%	24%	29%	22%	26%
Bread	7%	4%	12%	11%	8%
Fruit	14%	12%	18%	0%	13%
Sweet	0%	4%	6%	0%	3%
Coffee	0%	0%	0%	0%	0%
Other	4%	0%	0%	0%	1%

Questions	% answers				% Total
	1-3 years	4-6 years	7-10 years	11-14 years	
5. DO YOU EAT OUTSIDE THE 5 MEALS OF THE DAY (breakfast, snack, lunch, snack, dinner)?					
Every day	11%	10%	0%	0%	7%
Sometimes	44%	50%	17%	67%	43%
Almost never	22%	10%	17%	0%	14%
Never	22%	30%	67%	33%	36%
6. CEREALS AND/OR DERIVATIVES (PASTA, RICE, GNOCCHI, SOUPS, POLENTA, BARLEY, SPELLED etc.)					
I eat one portion a day (lunch or dinner)	67%	64%	50%	100%	67%
I eat one serving 2-3 times a week	0%	9%	17%	0%	7%
I eat a portion for both lunch and dinner	22%	27%	33%	0%	23%
Almost never	11%	0%	0%	0%	3%
Never	0%	0%	0%	0%	0%
7. WHAT FOODS DO YOU CONSUME?					
Bread	54%	38%	63%	57%	51%
Crackers	23%	38%	13%	14%	24%
Rice cakes	15%	15%	13%	0%	12%
Toast	0%	8%	13%	29%	10%
Other	8%	0%	0%	0%	2%
8. MEAT					
I eat one serving a day	0%	30%	17%	25%	17%
One or two servings per month	0%	10%	0%	0%	3%
I eat one serving 2-3 times a week	100%	60%	83%	50%	76%
Rarely	0%	0%	0%	0%	0%
Never	0%	0%	0%	25%	3%
9. CUT INTO SLICES FOOD (HAM, SALAMI, MORTADELLA)					
I eat one serving a day	0%	0%	0%	0%	0%
One or two servings per month	33%	29%	17%	0%	23%
I eat 2-3 times a week	44%	57%	67%	50%	54%
Rarely	22%	0%	17%	25%	15%
Never	0%	14%	0%	25%	8%
10. FISH					
I eat one serving a day	0%	0%	0%	0%	0%
I eat one serving 2-3 times a week	56%	20%	0%	0%	24%
One or two servings per month	11%	40%	67%	75%	41%
Rarely	33%	20%	33%	0%	24%
Never	0%	20%	0%	25%	10%
11. CHEESES					
I eat one serving a day	11%	10%	0%	0%	7%
I eat one serving 2-3 times a week	67%	50%	83%	25%	59%
One or two servings per month	11%	30%	17%	0%	17%
Rarely	11%	10%	0%	75%	17%

Table1 continues

Table 1. Questionnaire. *(continued)*

Questions	% answers				% Total
	1-3 years	4-6 years	7-10 years	11-14 years	
Never	0%	0%	0%	0%	0%
12. EGGS					
One per week	11%	20%	17%	0%	14%
2 per week	56%	50%	83%	25%	55%
2-3 per month	33%	0%	0%	0%	10%
Rarely	0%	20%	0%	25%	10%
Never	0%	10%	0%	50%	10%
13. LEGUMES					
I eat one serving a day	11%	0%	0%	0%	3%
I eat one serving 2-3 times a week	44%	60%	33%	50%	48%
One or two servings per month	33%	20%	67%	25%	34%
Rarely	11%	10%	0%	0%	7%
Never	0%	10%	0%	25%	7%
14. DO YOU CONSUME THESE FOODS OF PLANT ORIGIN?					
SEITAN					
Rarely					100%
Never					0%
1 time a day					0%
1 or 2 times a week					0%
1 or 2 times a month					0%
TOFU					
Rarely					93%
Never					4%
1 time a day					0%
1 or 2 times a week					4%
1 or 2 times a month					0%
TEMPE'					
Rarely					100%
Never					0%
1 time a day					0%
1 or 2 times a week					0%
1 or 2 times a month					0%
NUTS					
Rarely					15%
Never					42%
1 time a day					4%
1 or 2 times a week					8%
1 or 2 times a month					31%
15. HOW MUCH VEGETABLES DO YOU CONSUME?					
Rarely					3%

Questions	% answers				% Total
	1-3 years	4-6 years	7-10 years	11-14 years	
Never					17%
1 portion per meal (lunch and dinner)					43%
1 portion per day (for lunch or dinner)					33%
1 portion per week					3%
16. WHICH OF THESE SEASONINGS DO YOU USE?					
Extra virgin olive oil					34%
Olive oil					5%
Butter					15%
Margarine					0%
Corn oil					4%
Soybean oil					0%
Linseed oil					0%
Peanut oil					0%
Sunflower oil					0%
Various seed oil					1%
Hemp oil					0%
White salt					12%
Iodized salt					11%
Whole salt					0%
Wine vinegar					1%
Balsamic vinegar					5%
Apple cider vinegar					1%
Lemon juice					9%
17. WHICH OF THESE PRODUCTS DO YOU CONSUME					
Soy sauce					67%
Miso					0%
Sesame seeds					22%
Gomasio					0%
Algae					0%
Sunflower seeds					0%
Flax seed					0%
Pumpkin seeds					11%
Wholemeal bran					0%
Brewer's yeast (supplement)					0%
Wheat germ					0%
Fresh sprouts					0%
18. HOW MUCH FRUIT DO YOU CONSUME?					
One fruit a day					25%
2 fruits a day					54%
3-4 fruits per day					7%

Table 1. Questionnaire. *(continued)*

Questions	% answers				% Total
	1-3 years	4-6 years	7-10 years	11-14 years	
3-4 fruits per week					4%
Rarely					4%
Never					7%
AT WICH TIME OF THE DAY?					
Away from meals					44%
After meals					56%
19. DO YOU CONSUME YOGOURT?					
Everyday					7%
2-4 times a week					56%
2-3 times a month					15%
Rarely					15%
Never					7%
WHAT TYPE?					
Natural yoghurt					21%
Fruit yoghurt					79%
Soy or rice yoghurt					0%
Everyday					
20. DO YOU DRINK NATURAL WATER?					
Yes					96%
No					4%
DO YOU DRINK CARBONATED WATER?					
Yes					28%
No					72%
TOTAL QUANTITY:					
Minus 0.5 litres					18%
From 0.5 liters to 1 liter					57%
From 1 liter to 1.5 litres					18%
More than 1.5 litres					7%
WHEN?					
Throughout the day					40%
During the day and at meals					55%
Only at meals					5%
21. DO YOU CONSUME SUGAR CARBONATED DRINKS (cola, orange soda, soda, lemonade, etc.)?					
Everyday					4%
3-4 times a week					0%
1-2 times a week					26%
2-3 times a month					7%
Rarely					19%
Never					44%

Questions	% answers				% Total
	1-3 years	4-6 years	7-10 years	11-14 years	
22. DO YOU EAT SWEETS (candy, chewing gum, chocolates, cakes, ice cream, etc.)?					
Everyday					21%
3-4 times a week					11%
1-2 times a week					29%
2-3 times a month					4%
Rarely					25%
Never					11%
23. DO YOU DRINK COFFEE?					
Yes					0%
No					100%
BARLEY DRINK					
Yes					8%
No					92%
DO YOU DRINK TEA?					
Yes					26%
No					74%
DO YOU TAKE HERBS?					
Yes					0%
No					100%
24. WHICH SWEETENERS DO YOU USE?					
Chemical sweeteners (saccharin and aspartame)					0%
Fructose					50%
Malta (corn, rice)					0%
Maple or agave syrup					0%
Other					50%
25. DO YOU TAKE ALCOHOL?					
Yes					0%
No					100%
26. SMOKES					
Yes					0%
No					100%
27. DO YOU PRACTICE SPORTS ACTIVITIES?					
Yes					62%
No					38%
WHEN?					
Everyday					0%
1-3 times a week					100%
Rarely					0%

Table 2. Characteristics of the patients.

	1-3 years		4-6 years		7-10 years		11-14 years	
	Average	SD	Average	SD	Average	SD	Average	SD
Weight Kg	13,49	2,54	23,95	13,67	28	6,03	17,91	9,96
Height cm	91,78	6,55	117,3	19,56	131,83	10,85	69,89	63,52
years	2,17	0,71	5,15	0,75	8,5	1,38	3,94	3,61
n° Males	2		2		2		2	
n° Females	7		8		4		2	
Total n°	9		10		6		4	

Results

The results are reported entirely in Table 1. The processed data highlights the good habit of having breakfast every morning in most cases of the answers given (76%; question no. 2) which, however, tends to decrease in the 11-14 age group (25%; question no. 2). As regards lunch (question no. 3), in 75% of the answers it appears to be complete and made up of a first course, a second course and a vegetable-based side dish, just as dinner appears to be like lunch in 77% of the answers (question no. 4).

Approximately 50% of the responses given tend not to eat between meals even if there is a tendency to eat between meals in the 11-14 age group (question no. 5). As regards the consumption of cereals, a consumption of 1 portion per day was found in 67% of the responses (question no. 6). 51% consume bread (question no. 7). 76% of the respondents consume meat 2-3 times a week (question no. 8), highlighting the excessive consumption of meat which is related to the manifestation of chalazion as it is rich in saturated fatty acids. Even with regards to cold cuts, excessive consumption is highlighted in most responses (54% question n°9) and this type of food also correlates with the manifestation of chalazion. Also highlighted in 75% of the responses is a reduced consumption of fish (question no. 10) and therefore a low intake of R3 polyunsaturated fatty acids. Also, regarding the consumption of cheese, most responses highlight consumption 2-3 times a week (59% question n°11). Egg consumption appears to be 2 per week in most

responses (55% question n°12). The consumption of legumes appears to be 48% of the responses of 2-3 times a week. As regards the consumption of foods of plant origin (tofu, seitan, tempè), there is no appreciable consumption (question no. 14). Seed consumption appears to be low (rarely 42% and never 15%, question n°15). The type of condiment was extra virgin olive oil in 34% of cases but butter was also consumed in 15% of the responses (question no. 16). A consumption of soy sauce was also noted in 67% of only 6 responses (question no. 17). Fruit consumption, on the other hand, it is appreciable in 79% of the responses with a consumption of 1-2 fruits per day (question no. 18) in most responses (56%) fruit consumption occurs after meals. Regarding the consumption of yogurt (question no. 19), most responses (56%) highlight consumption 2-4 times a week. There is also consumption of natural water in most responses (96% question n°20) with consumption of approximately 1 litre per day. The consumption of natural water depends on the age of the subjects. As regards the consumption of carbonated drinks, 44% of the responses highlight the non-consumption of these drinks associated with 19% of rare consumption of these drinks (question no. 21). As regards the consumption of sweets, in 61% of cases there is a consumption of at least once a week. (question n°22).

Fructose is used as a sweetener in 50% of the answers given (question n°24). Finally, in 62% of the responses the subjects practiced sporting activity (question no. 27), 1-3 times a week in 100% of the responses given.

Discussion and conclusions

Chalazion is a common pathology in childhood as well as in adulthood. The questionnaire provided to 29 paediatric subjects with recurrent chalazion highlighted their eating habits. As indicated by the various world health organizations (10,11) a healthy diet can help prevent various recurrent pathologies, including overweight, diabetes, and obesity, especially in children. Even in the chalazion, there are numerous signs of an incorrect diet which can therefore correlate with the recurrent manifestation of the pathology. In this work, the various food groups were analysed (table 1) and it was highlighted that the consumption of some goes outside of good eating habits. The consumption of cold cuts (cured meats and preserved meats) appears to be excessive with an average consumption of 2-3 times a week in most subjects. The consumption of cold cuts is discouraged by the guidelines. Even the consumption of meat appears to be slightly excessive, the majority consumes meat 2-3 times a week while the use of 1-2 times a week is recommended, on the other hand, the consumption of fish which is recommended 2-3 times a week is insufficient being 1-2 portions per month in 41% of the responses while 34% consume it rarely or never.

The consumption of cheese rich in saturated fats is also slightly abundant, especially when combined with the consumption of yogurt which is optimal (2-4 times a week). The consumption of sweets and sugary drinks represents a common but somewhat incorrect habit as they are rich in simple sugars (the questionnaire highlights a daily habit of consuming sweets). The consumption of fruit and vegetables, however, is completely acceptable and this is part of good eating habits. The consumption of legumes also remains acceptable and should certainly be increased (48% consume them 2-3 times a week). Sporting activity is practiced in 62% of subjects and this represents a good practice with an increasing trend, it should reach 100%. From this work, as already highlighted in part in other works, it seems to emerge that some incorrect eating habits correlate with the pathological manifestation of chalazion in paediatric children. We highlighted the excessive use of cold cuts (cured meats and

sausages), sweets, and sugary drinks which should be drastically limited.

Conflict of Interest: each author declares that he or she has no commercial associations that might pose a conflict of interest in connection with the submitted article.

Author Contribution: CM: concept, design, data collection and Processing, analysis and interpretation, literature search; SM and FA: concept, design, data collection, critical review; MM: writing manuscript, critical review; FC: design, critical review; AA: concept, design, data collection, processing analysis, critical review.

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Received: 24 March 2024

Accepted: 24 April 2024

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