Cardiaspasm and Cardia Cancer

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ABSTRACT

The review of special literature and author's own material is presented. Cases of misdiagnosis of cardia cancer and cardiaspasm are analyzed. The original table of differential diagnosis of these diseases is offered. For the cancer of cardia the original method of esophagogastric and esophagoenteric anastomosis is described. To eliminate the traction on anastomosis the author offers to attach the intestine or gastric stump (after gastrectomy) on the cruces of diaphragm. The author believes that it is the mistake to suture these organs around to the edges of the diafragmotomic incision. The author has used described technique in 27 cases with no suture leakage.

KEYWORDS: *cardiaspasm, cardia cancer*

The problem of correlation between a functional pathology of lower esophageal sphincter (cardiaspasm) and a cardia cancer is extremely important from the clinical point of view. The errors in the differential diagnostic of these pathologies are often fatal for patients.

The survey works supply us with statistical data that the diagnosis of cardia cancer isn't determined in the group of cardiaspasm "patients" in 4% of cases (Hollender L, F., Meyer C. H. R., Jamart J., Colderoli H. 1977). According to Utkin (Utkin V. 1973), among the 12 cases of unsuccessful cardiadilatation the cardia cancer was a cause of 5 cases. Following the collective statistics by Rapant and Kralik (Rapant V., Kralik J. 1970), cardia cancer was observed in 2,5% of cases among 3843 cardiaspasm patients, and this frequency is 10 times more the usual frequency of cancer with the mentioned localization.

A. Cherniavskiy (1982) has revealed the cardia cancer in 5 cases (2,5%) in the midst of 201 patients with a cardiaspasm diagnosis. In none of cases the radical operation was regarded possible. Such diagnostically errors are described in Russian special literature by I. Starchenko (1972), N. Medvedeva & Coauthors (1974), A. Kovalenko, G. Chepurnoy (1975, 1990) and others.

The wide implementation of esophagogastrofibroscopy in clinical practice has reduced considerably the interconfusion of the diagnoses of cardia cancer and cardiaspasm, though we're still far from the final solution of this problem.

It's very important to distinguish in good time the cancer developed during a cardiaspasm process. According to the data of references (Just-Viera J.D., Morris J.D., Haight C. 1987, Brucher B.L., Stein H.J. and others. 2001), this fatal complication develops in 1-7% of cases and its revelation isn't a very easy action. In the opinion of the most of authors, retentive esophagitis and reflux-esophagitis developed because of superfluous cardiadilatation or inadequate operational intervention, repetitive traumas that accompany multiple cardiadilatation, are the cause of cancer development on the background of cardiaspasm.

O. Fiodorova (1973) has revealed the cardia cancer against a cardiaspasm background in 2,8% of cases.

J. Loygue (1976) has described 20 cases of esophageal cancer development on the background of cardiaspasm.

The most difficult case in the sense of diagnostics is such of the cancer arisen in a dilated esophagus. It can be suspected in the presence of bleeding and a sharp deterioration of general state of the patient. The change of the kind of pain during the illness is also very important.

Consequently from the above, a series of authors consider that cardiaspasm patients need to be examined by esophagoscopy regularly (Hankins J. R., Laughlin J. S. 1975). It seems that after a long process of cardiaspasm in the contraction zone there can be arisen the nidi of malignization, with the further development of tumor.

From this point of view, it's interesting to mention one observation made by us:

The male patient V-ov, at the last visit to surgery center, 53 years old (25.03.81 Hist. #11780). His disphagy has begun thirty years ago (1951). In 1954 had been operated at the other institution. He doesn't know what sort of operation was made over him. The state of the patient was satisfactory till 1962. In 1962 the increasing disphagy has begun to disturb him again. In 1965 he has been hospitalized to the center. The diagnosis of cardiaspasm was ascertained. The patient has been made the triple cardiadilatation. Until 1977 he felt himself well. In 1977 the disphagy was repeated. Cardiadilatation has shown us good results.

In 1978 the patient applied to the center again, with the diagnosis of esophageal peptic stricture. The esophagoscopy has concluded: esophagus contains a great quantity of mucus; on the 38th cm it's contracted to 0,4-0,5 cm. In the place of contraction the walls of esophagus are rigid, rough. The endoscope can't pass the stricture zone. The biopsy has been taken. The diagnosis of adenocarcinoma is ascertained. The patient has been treated on 13.04.78. with thoracolaparotomy, cardia resection, esophagogastrostomy. In the post-operation period he has had eventratio, anastomosis insufficiency. After an intensive therapy the patient was healed. He left the center with a satisfactory state of his health. For the last time he visited the center in order to be examined. His state is satisfactory.

There are the cases when the diagnosis of cardiaspasm is made while cardia cancer is developed. The patients do loose the best time for being healed, and if the diagnostic error isn't corrected in time, it may become fatal for the patient.

From this point of view two cases we've had are very interesting. The both patients entered the clinic with cardiaspasm diagnoses. In both cases after an adequate examination the diagnoses of cardia cancer were made. We give below the brief excerpts from the histories of these patients:

The female patient P-kova, 52 years old. Entered the clinic on 19.01., 1989 (Tbilisi Hospital #2, Hist. #342), with the diagnosis of 3rd degree cardiaspasm. She complains of a disphagy, connecting it with the psychical trauma that has endured 6 months ago. The general state of the patient for the moment of entering is satisfactory. The esophagoscope can't pass through cardia. Motoric function of the esophagus is increased. The cardiadilatator also can't be conducted through cardia. The presence of neoplasm was suspected and by the means of the repetitive x-ray examination the cancer diagnosis of cardia part of the stomach was determined. The patient has been treated with laparatomy. The case is inoperable.

It seems that the attention of doctor was relaxed by the reason of the presence of psychical trauma in anamnesis. The indispensable minimum of examinations, in particular - the gastric roentgenoscopy, wasn't made by him, whereas it's namely the procedure making clear the diagnosis.

The second case concerns the woman of 25 years that entered the clinic on 10.10., 1986 (Tbilisi Hospital #2, Hist. #563), with the diagnosis of cardiaspasm. The general state 3 months after a normal delivery is satisfactory. She complains of a disphagy developed 2 months after the delivery. It's impossible to conduct either esophagoscope or cardiadilatator through cardia. In a roentgenological way: the esophagus is dilated, its motoric function is increased. The Barium does pass to the stomach in a thin jet. Having made a gastric roentgenoscopy, the cancer diagnosis of cardia part of the esophagus was determined.

On 15.05. the gastrectomy was made to the patient (record #102). We put the anastomosis between esophagus and small intestine, in conformity with a brook rule in our modification (fixed anastomosis). The post-operation period was passed without any complication. The patient left the hospital with a good state of her health.

It follows from the above that the patients with functional diseases of cardia, both the operated and treated with cardiadilatation ones, must be registered in a dispensary system, being controlled in roentgenoscopic or endoscopic way once in the year, as a minimum.

We think the cases described above give us a fundament to base on it the consideration that "the impossibility to conduct the cardiadilatator through cardia" is a symptom to make us think about the existence of tumor process in cardia.

Before the discussing of our next cases, I'd consider necessary to describe our modification of esophagoenteric and esophagogastric anastomosis, indicated in the description of the previous case. The methodic is given in our publications (S. Kemoklidze 1999). Mastering the problem, we've arrived to a conclusion that the high percentuality of esophagoenteric and esophagogastric insufficiencies (20-40%) is caused by a series of factors that contains the most important ones: a) The abdominal part of esophagus hasn't a serotic membrane; b) After the anastomosis is formed, there happens the traction in caudal direction; c) The sewing-around of diaphragmotomic incision to the anastomosis contributes to the suture insufficiency.

It's impossible to arrange the formation of a perfect serotic membrane on the esophagus, though in the literature we can find the attempts to do so, for example - the anastomosis of E. Beriozov and B. Peterson (Петерсон Б. Е. 1960, 1962; Цаканиди К. Н., Богданов А. В. 1969) that has been abandoned by the authors themselves.

What about the maximum decrease of the traction, following from this, having formed the esophagoenteric or esophagogastric anastomosis, we fix the gastric stump or the part of intestine adjacent to anastomosis, onto the cruces of diaphragm or other formations so that the vertical traction of anastomosis is completely excluded (*Fig.1*). In order to obtain such a situation it's sufficient to make one or two nodulous stitches distally to the anastomosis, and the traction will be eliminated. We're categorically against the sewing-around of the diaphragm to anastomosis, though it's possible to decrease the diaphragmotomic cleaving by the means of diaphragm-diaphragm sutures. What about the anastomosis formation itself, we prefer the anastomosis with a two-level nodulous stitches. First of all, the nodulous stitches must be made along the entire perimeter of the place meant for esophagus, intestine and stomach anastomosis, through all the layers. After the mentioned procedure the invagination of anastomosis stitches is accomplished with the help of second-level sutures, to the opening of intestine or stomach, controlling the height of the invaginate not to exceed 1,5-2 cm. The final view of anastomosis and the fixation of driving eye are given on the

We have fulfilled the first gastrectomy with formation of anastomosis, modified by us, on 11.05., 1978 (*The male patient K-shvili, 67 years old, he entered the Tbilisi Clinical Hospital #2, the department of surgery, on 20.04., History #1801, operated on 11.05., record #325*).

Since then we've made 8 more proximal resections and 19 more gastrectomies, using the method described above. In all the cases we had to deal with the cancer of cardia part of esophagus and stomach. And in none of cases we've observed the anastomosis insufficiency. All operations were made using abdominal approach, by the means of sagital diaphragmotomy. I'd like to mention here also that I regard the sagital diaphragmotomy as a genial godsend of great Russian surgeon - Savinikh. Besides the above-described cases, we've had 2 more events when the patients having a cardia cancer were taken to the hospital with cardiaspasm diagnosis. Hereinafter we'll give the brief excerpts from the patients' histories:

The male patient A-ev, 54 years old, entered the surgery clinic of Tbilisi Hospital #2 on 28.02., 2002 (Hist. #137) with a cardiaspasm diagnosis. The diagnosis was determined in Baku. 2 months ago he has had the attacks of disphagy that he connects with a psychical stress. We've treated him with gastrofibroscopy. The cancer diagnosis in cardia part of esophagus was made. On 20.02., after an intensive preparation, he has been operated and the diagnosis was ascertained. We've made the gastrectomy together with the big and small adipose grid tissues. Anastomosis - in conformity with a brook rule, with our modification. The post-operation period - smooth. He left the hospital on 12th day after the operation.

The second case about a female patient G-dze, 38 years old. She entered the clinic on 22.03., 2002 (Hist. #221). Her disphagy has begun 1,5 months ago. She connects it with a psychical trauma. At the policlinic the cardiaspasm diagnosis was made. We've treated her with fibrogastroscopy. Our diagnosis was about cancer of cardia part of the stomach, transferred to the esophagus. On 24.03. the operation - gastrectomy together with the big and small adipose grid tissues and lymphatic nodes - was made. Anastomosis - in conformity with a brook rule, with our modification. The post-operation period - smooth. She left the hospital on 15th day after the operation.

Hence, in spite of a little quantity of materials, we can be quite sure that the esofagogastric and esophagoenteric anastomosis offered by us deserves to be recommended for a wide implementation in practice, included the benign esophageal strictures. Of course, the misdiagnosis - fatal diagnostic errors, are caused in our cases by a relatively young age of patients and by appellation to psychical traumas that had anticipated the manifestation of disphagy.

Among our materials there are the cases when the patients were treated by the means of cardiadilatation, either without effect or - with a temporary effect. Also in such cases the time used to be wasted and the patients were left without a radical intervention. What about the tumor traumas arisen during the dilatation, it seems that they contribute to the dissemination of the process and development of other complications dangerous for the human life.

From this point of view, it's interesting to see the two cases we've had when the cardiadilatation fulfilled whereas there was a cancer developed in cardia part of esophagus, has caused the development of a massive embolism of pulmonary artery.

The female patient Sh-dze, 23 years old, entered the clinic on 21.09., 1988 (Clinical Hospital #2), with a cardiaspasm diagnosis. The diagnosis was "verified" both roentgenologically and esophagoscopically. The patient has been treated by the means of cardiadilatation that gave the satisfactory results. The disphagy was decreased, the patient begun to receive the food freely. Then the second cardiadilatation was made and 4-5 hours after this cardiadilatation the patient begun to complain of a heavy pain behind the breast-bone, she has had the cyanosis. Soon both the breath and cardiovascular insufficiencies had developed. Diagnosis: the massive embolism of pulmonary artery, a lightning-speed form. At the autopsy the diagnoses of cardiaspasm and embolism of pulmonary artery have been verified. At the histopathological examination of cardia environment the cancer diagnosis in cardia part of esophagus in situ appeared. So, the correct diagnosis was determined only histopathologically.

Our second case concerns the male patient of 87 years, that entered Tbilisi Clinical Hospital with a cardiaspasm diagnosis. The diagnosis was "verified" both roentgenologically and esophagoscopically. The patient has been treated by the means of cardiadilatation. 4-5 hours after dilatation the acute insufficiency of the breath was developed, the patient has had a pain in breast area, cyanosis. Soon he died. During the autopsy the cancer in situ in cardia part of esophagus was determined.

The both of cases verify once more that differential diagnostic of cardiaspasm and cardia cancer is very difficult. Obviously, in case of cardia cancer the cardiadilatation is contra-indicated. And about pathogenesis of massive pulmonary embolism we think so: the cardiadilatation causes a transition of thrombus existing in vein network of esophagus, to broad veins, that, in the presence of cancer of esophagus, contributes to the development of a massive embolism, because of the hypercoagulation that accompanies tumor pathologies.

We can find also the errors vice versa when cardiaspasm patients are sent to clinics with cardia cancer diagnosis. The results of such errors aren't so fatal as seen in previous cases. And still, - the laparatomy made because of the mistake can't be considered the best means, while there does exist the proper method of treatment - cardiadilatation. In case of difficulties in differential diagnostic of cardiaspasm and cardia cancer we apply to laparatomy. The differentiation between these two pathologies can be accomplished during the process of operation. If diagnosis of the cardiaspasm becomes ascertained, we make an operative cardiadilatation, and otherwise, - in case of cardia cancer of esophagus, we fulfill proper and adequate intervention.

The worse situation can be observed if cardiaspasm patient is subjected to a ray treatment. Such a case was observed by us twice. The further treatment of the mentioned patients with cardiadilatation was resulted ineffective, as the ray therapy caused some organic changes in cardia zone.

Having studied the 200 cases of the first-hand applied materials, we've ascertained that the 54% of patients becomes taken to the hospital with a cardia cancer diagnosis. Naturally, the mentioned fact is caused by the ignorance of the wide circles of doctors in the field of the clinics of functional pathology of lower esophageal sphincter. The policlinics under-equipped with the endoscopic technique also do play an important role, though the same fact, in a certain sense, shows the oncological awareness of doctors too.

In *Tab.1* we've given the differential-diagnostic points of cardia functional pathologies and cardia cancer.

CONCLUSIONS

1. Cardiaspasm patients must be registered in a dispensary system, being controlled in esophagogastroscopic way every year.
2. The "impossibility to conduct the cardiadilatator through cardia" is a symptom to make us think about the existence of tumor process in cardia.
3. The main causes of suture leakage in esophagoenteric and esophagogastric anastomosis are the absence of a serotic membrane in the abdominal part of esophagus and the formation of anastomosis traction; the sewing-around of diaphragmotomic incision to the anastomosis also contributes to the suture leakage.
4. The "fixed" esophagogastric and esophagoenteric anastomosis offered by us practically excludes the traction in anastomosis environment that strongly decreases the possibility of anastomosis suture insufficiency.
5. The edges of a diaphragmotomic incision must be sutured not in anastomosis environment.

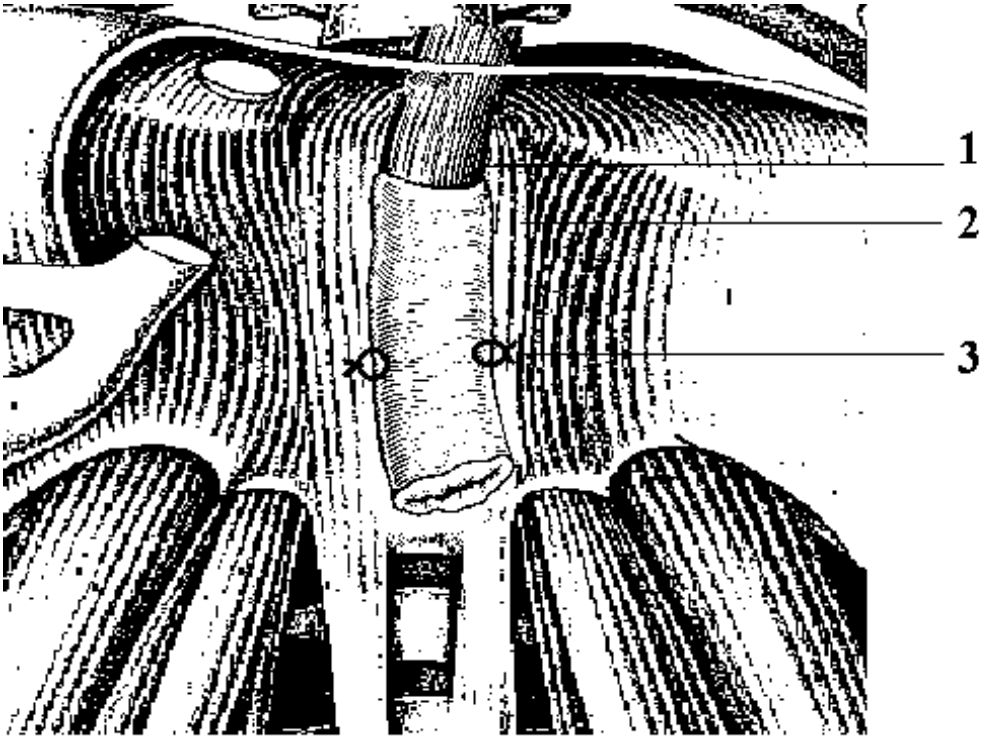

Fig.1 *Fixation of small intestine below the anastomosis, onto the cruces of middle joist. The final view of anastomosis. 1 - Esophagus. 2 - Anastomosis. 3 - Stitches fixing the small intestine on the cruces of the middle joist.*

CARDIASPASM	CARDIA CANCER
Develops in young age (20-40 years old)	Can be observed more often after 40
Begins rapidly, is connected with psycho-emotional factors	Develops gradually
Can be characterized by a long anamnesis	Proceeds rapidly
Disphagy is often intermissive, can be observed cases of paradoxal disphagy	Progressing disphagy
Strong diminution of stomach air bladder, or – its absence	Stomach air bladder diminution because of deformation of walls
Direct contours of walls in a zone of esophagus contraction ("Syringe-Phenomenon" or sign of "Mouse Tail")	"Eaten-up" contours of walls in a zone of contraction
Positive test of Harst	Negative test of Harst
Propagation of peristaltic wave in a zone of contraction	Peristalsis can be propagated till the contraction zone
Free conduction of cardiadilatator	Conduction through cardia is quite impossible for the cardiadilatator or it has to overcome great obstacles

Tab.1 *The differential diagnosis.*

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Кардиаспазм и рак кардиального отдела пищевода и желудка

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Р Е З Ю М Е

В работе рассмотрена специальная литература и собственный материал. Проанализированы случаи ошибочной дифференциальной диагностики кардиаспазма и рака кардиального отдела пищевода и желудка (ПЖ). Разработана и приведена таблица дифференциальной диагностики этих болезней. При рассмотрении вопроса хирургического лечения рака кардиального отдела ПЖ описана оригинальная методика формирования пищеводно-кишечного и пищеводно-желудочного анастомоза с фиксированием кишки, или части желудка, оставшейся после проксимальной резекции к ножкам диафрагмы с целью предотвращения тракции анастомоза. Считаем ошибочным пришивание краев диафрагмотомического разреза к стенкам анастомозируемого органа. Описанная методика применена в 27 случаях гастрэктомии. Недостаточности швов не наблюдалось ни разу.

КЛЮЧЕВЫЕ СЛОВА: *кардиоспазм, рак кардии*