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Histopathological Analysis of Ovarian Tumours –Analysis of 2 Years

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Abstract
Background: *Ovarian tumours are one of the most prevalent gynaecological tumours in females . They often present in mid-decade of life insidiously. Ovarian cancer is the most frequent cause of death from gynaecological cancers.*
Aims and Objectives: *To study histological pattern of Ovarian Tumours in Bihar*
Material and Methods: *Institutional Ethical Committee approval and written informed consent from patients were taken. Ovarian specimens of 145 patients with suspected ovarian mass were studied for histopathological examination during the period of October 2012 to October 2014.*
Results: *Mean age of cases was 44.3 ± 9.5 years. Majority of the cases of ovarian were in age group of 20 – 40 years (63.45 %) .Age rage was from 21 years to 69 years. 123 cases (84.83 %) were benign ,3 cases (2.07 %) were borderline and 19 cases (13.1 %) were malignant. There were 111 cases (76.55 %) of surface tumours , 31 cases (21.38 %) germ cell, 1 case (0.69 %) of sex cord , 2 cases (1.38 %) of metastatic ovarian tumours . Among benign tumours , there were 96 cases of Serous cyst adenoma (66.21 %) , 4 cases of Mature cystic Teratoma , 1 case of Serous cyst adenofibroma (0.69 %), 1 case of Teratoma with Struma ovarii (0.69 %) .Among malignant tumours, there were 12 cases (63.16 %) of Serous cyst adenocarcinoma, 3 cases (15.79 %) of Immature teratoma , 2 cases of (10.53 %) Mucinoius cyst adenocarcinaoma, 1 case (5.26 %) of Krukenberg tumour and Granulosa cell tumour each.*
Conclusion: *Serous cyst adenoma are the most common benign ovarian tumour found in ovarian specimens with peak incidence at 20 – 50 years.*

INTRODUCTION

Ovarian tumours are one of the most prevalent gynaecological tumours in females. They often present in mid-decade of life insidiously. Occurrenceof these lesions is different according to geographical locations. Ovarian neoplasms, which are sub set of ovarian mass , are common tumours in females comprising 23% of all gynaecological tumours and are the most common gynaecological malignancy [1]. Women between 40 and 60 years of age have ovarian cancer incidence rates 2 to 3 times higher than younger women. Ovarian cancer is the most frequent cause of death from gynaecological cancers and the fourth most frequent cause of death from cancer in women in Europe, United States and Eastern India. Ovarian tumours are notorious for their large size and their frequent association with relatively mild symptoms. it is detected late in the clinical course of the disease. Risk Factors for ovarian cancer are not well defined. However there is general agreement on

two: nulliparity and family history [2]. A higher frequency of carcinoma is seen in unmarried women and in married women with low parity. The lifetime risk of ovarian cancer in women with no family history is 1.6%; with one affected first degree relative is 5% and 7% with two or more affected first degree relatives. One of the unique characteristics of ovarian tumors are their capacity to undergo peritoneal metastasis in the absence of invasive growth in the ovary. This has led to the concept of borderline tumors with a strict histologic criteria not influenced by its metastatic counterpart in the peritoneum. They commonly present with abdominal pain, a lump or menstrual irregularities [3,4]. In addition to biopsy, various diagnostic modalities include transvaginal ultrasonography, MRI, positron emission tomography and markers like serum CA 125 exists. Due to lack of well established cancer registry in India, changing trends of ovarian tumors has not been determined [5,6].

Diverse histopathologies are common in ovarian lesions. Relative frequency of different ovarian tumors is different for western world and Asian countries. For example surface epithelial tumors account for 50.0 – 55.0% of all ovarian tumors and their malignant counterpart for approximately 90.0% of all ovarian cancers in Western world whereas this figure is 46.0 – 50.0% and 70.0 – 75.0% respectively in Japan. Similarly mucinous tumors account for 12.0 – 15.0% of all ovarian tumors in Western world [7,8]. This figure is 20.0 – 23.0% for Japan. Germ cell tumors account for 30.0% of primary ovarian tumors and malignant germ cell tumors account for 3.0% of all ovarian cancers in Western world. Determination of these patterns is important for diagnosis, management and prognosis [9,10].

AIMS AND OBJECTIVES
To study the histological pattern of Ovarian Tumours in Bihar

MATERIAL AND METHODS
We obtained Institutional Ethical Committee approval and written informed consent from patients. Ovarian specimens of 145 patients with suspected ovarian mass were studied for histopathological examination during the period of October 2012 to October 2014.

Method of collection of data:
The specimens were allowed to fix in 10% buffered formalin for 24–28 hours. After fixation multiple bits were taken from representative areas of the tumor and the accompanying tissue. Special attention was given to solid areas adjacent to the ovarian surface and papillary projections. They were processed for histopathological examination and paraffin blocks were made. The blocks were cut at 3–5 μm thickness and stained with hematoxylin and eosin stain. Special stains and immunohistochemistry were carried out whenever needed.

Study Period:
Two year prospective study from October 2012 to October 2014

Inclusion criteria
1. Clinical and radiological suspicion of ovarian mass
2. Age group within 20 to 70 years

Exclusion criteria
1. Pregnancy related causes
2. Bleeding Diathesis

Sample size
Based on previous studies and statistical formula, a sample size of 145 was determined with an alpha error of 0.05 and power of 0.95.

Statistical methods
In the statistical analysis of our study, Continuous variables were presented as mean for parametric data and median if the data is non parametric or skewed. Student t test was applied for calculation of statistical significance whenever the data followed normative distribution. Mann whitney test was applied whenever data followed non normative distribution. Categorical variables was expressed as frequencies and percentages. Nominal categorical data between the groups was

compared using Chi-square test or Fisher's exact test as appropriate. P <0.05 was taken to indicate a statistically significant difference. Minitab version 17 was used for computation of statistics.

RESULTS

Table.1. Age profile of the study group

AGE	NO. OF CASES	PERCENTAGE
20 – 30	14	9.66%
30 – 40	78	53.79%
40 – 50	28	19.31%
50 – 60	18	12.41%
60 - 70	7	4.83%
Total	145	100.00%

Diagram . 1. Age profile of the study group

	20 – 30	30 – 40	40 – 50	50 – 60	60 - 70
NO. OF CASES	14	78	28	18	7
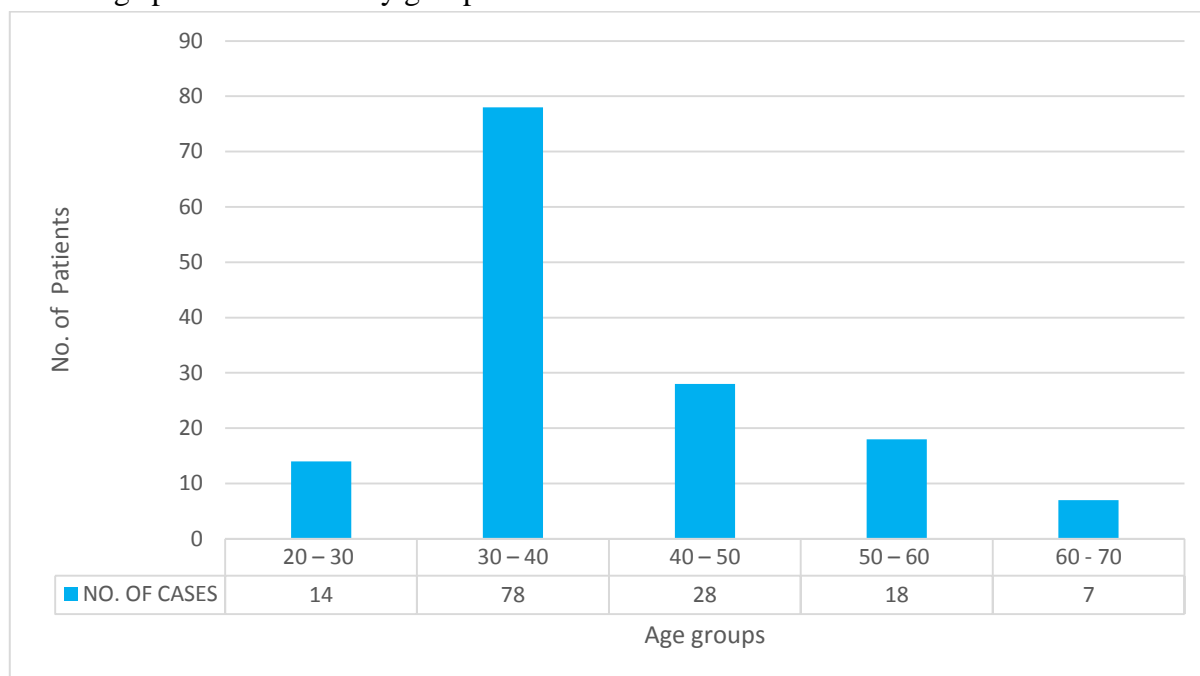
Table.2. Types of Ovarian mass

TYPE	NO. OF CASES	PERCENTAGE
BENIGN	123	84.83%
BORDERLINE	3	2.07%
MALIGNANT	19	13.10%
TOTAL	145	100%

Diagram.2. Types of Ovarian mass

NO. OF CASES	BENIGN	BORDERLINE	MALIGNANT
	123	3	19

Types of ovarian
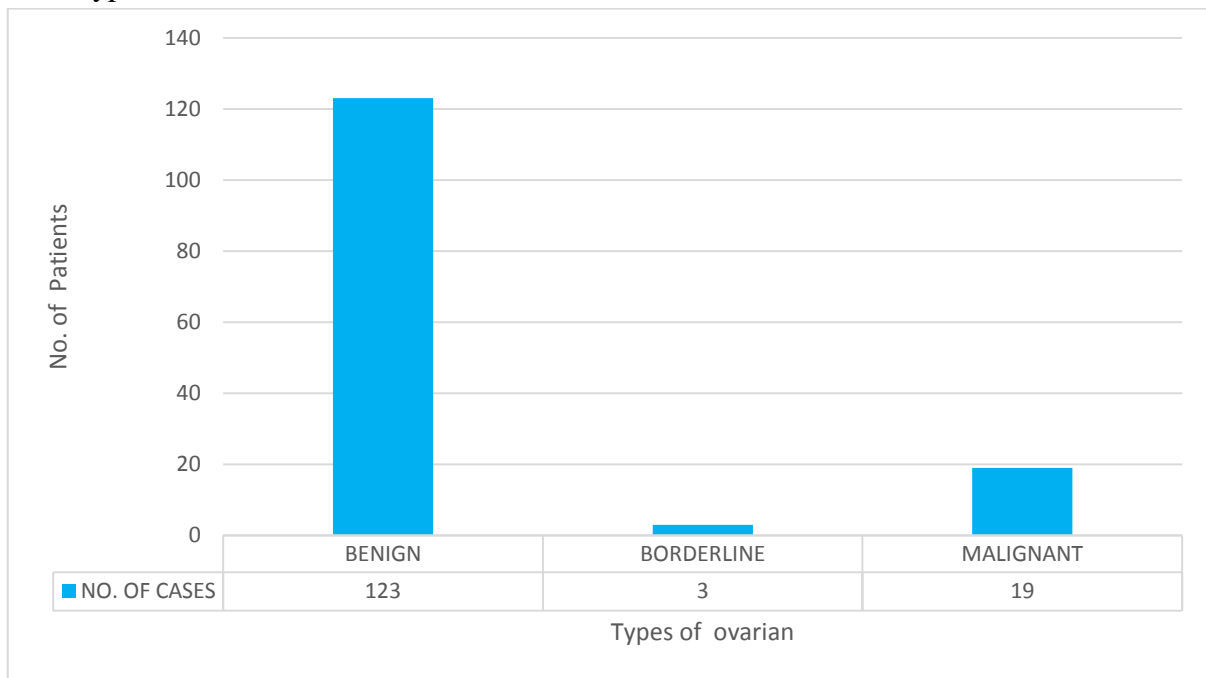
Table.3. Types Tumors according to various layers

TYPE	NO. OF CASES	PERCENTAGE
Surface	111	76.55%
Germ cell	31	21.38%
Sex cord	1	0.69%
Metastasis	2	1.38%
Total	145	100.00%

Diagram.3. Types Tumors according to various layers

NO. OF CASES	Surface	Germ cell	Sex cord	Metastasis
	111	31	1	2

Types of ovarian tumpors (According to layers)
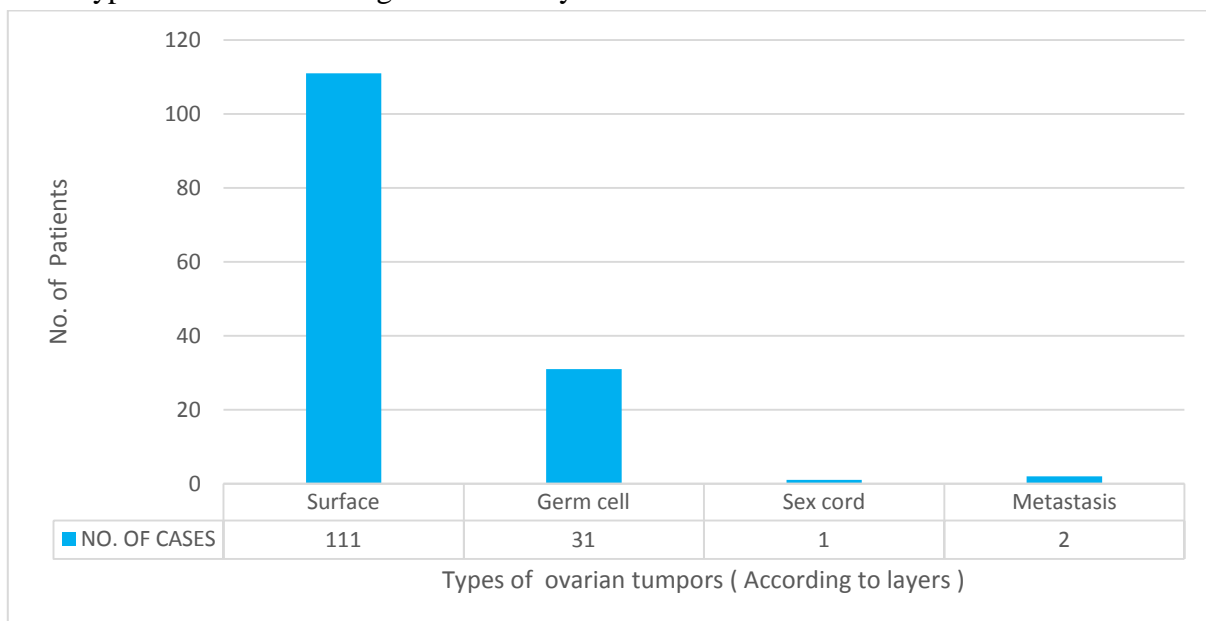
Table.4. Morphological Sub types of Benign tumors of ovary

SUB TYPES	NUMBER	PERCENTAGE
Serous cyst adenoma	96	66.21%
Mature cystic Teratoma	43	29.66%
Mucinous cystadenoma	4	2.76%
Serous cyst adenofibroma	1	0.69%
Brenners tumour	0	0.00%
Teratoma with Struma ovarii	1	0.69%
Total	145	100 %

Diagram.4. Morphological Sub types of Benign tumors of ovary

	Serous cyst adenoma	Mature cystic Teratoma	Mucinous cystadenoma	Serous cyst adenofibroma	Brenners tumour	Teratoma with Struma ovarii
NUMBER	96	43	4	1	0	1

Types of Benign ovarian tumours
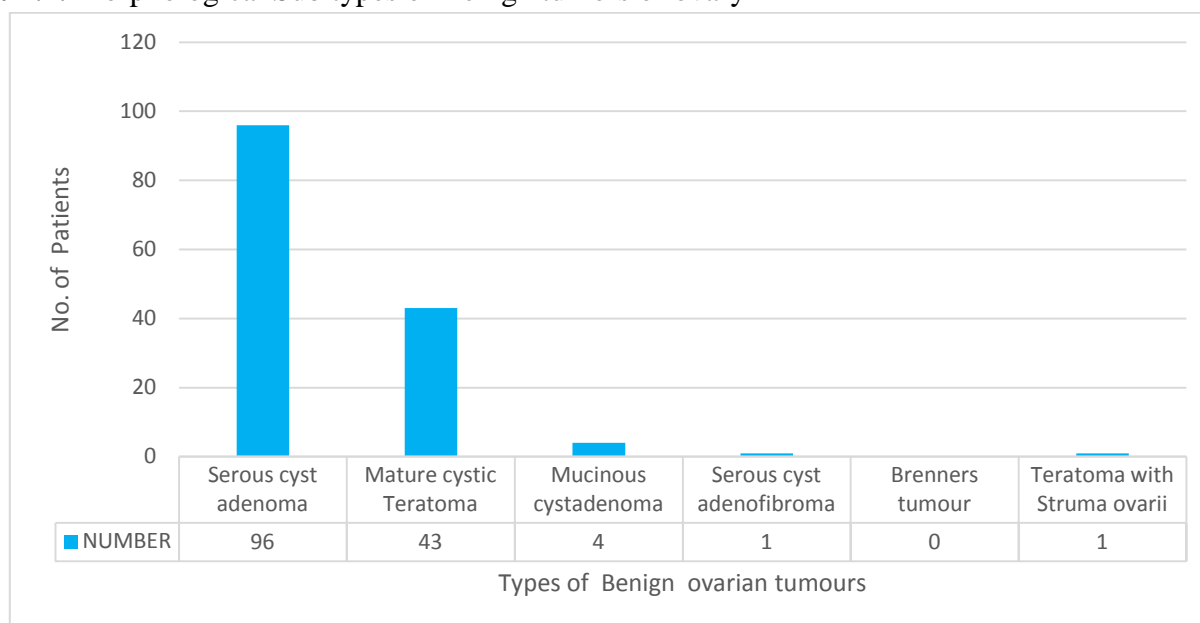
Table 5. Distribution of Malignant Ovarian neoplasm

SUB TYPES	NUMBER	PERCENTAGE
Serous cyst adenocarcinoma	12	63.16%
Immature teratoma	3	15.79%
Mucinoius cyst adenocarcinaoma	2	10.53%
Krukenberg tumour	1	5.26%
Dysgerminoma	0	0.00%
Granulosa cell tumour	1	5.26%
Total	145	100 %

Diagram 5. Distribution of Malignant Ovarian neoplasm
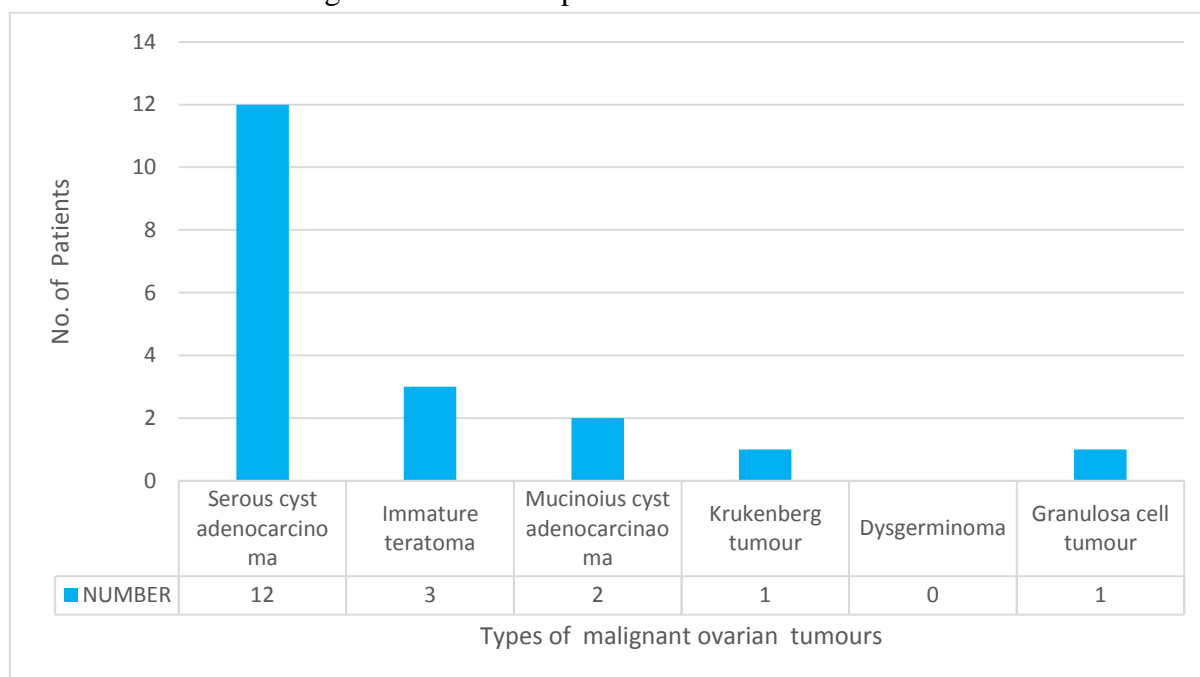
DISCUSSION

In our study, mean age of cases was 44.3 ± 9.5 years. Majority of the cases of ovarian were in age group of 20 – 40 years (63.45 %). Age rage was from 21 years to 69 years .Thus age group of 20 – 50 years seems to be most vulnerable age group for ovarian mass. In study by Shreya Hegde et al , study reported highest no. of cases in 2nd – 5th decade of life [11]. In study by Veena Saxena, similar higher incidence was found in 2nd – 5th decade of life. These findings differs from the western data where it higher incidence was between 50 and 70 years.

In our study , 123 cases (84.83 %) were benign , 3 cases (2.07 %) were borderline and 19 cases (13.1 %) were malignant. In study by Veena Saxena, 98(80.8%) cases of Benign, 2 Borderline (1.6%) and 20 cases of Malignant (16.5%). Similarly, study by Vijay Kumar Bodal et al showed 75% were benign; 1.66% Borderline and 23.3% malignant [12].

In our study, there were 111 cases (76.55 %) of surface tumours , 31 cases (21.38 %) germ cell, 1 case (0.69 %) of sex cord, 2 cases (1.38 %) of metastatic ovarian tumours . In study by Veena Saxena, 60 cases (70.83 %) were surface tumours, 28 cases (26.04 %) germ cell, 3 cases (3.13 %) of

sex cord tumours. In the study by Geetha Pachori, the most common ovarian tumors were surface epithelial tumors (65.29%), followed by germ cell tumors (23.97%) and sex cord–stromal tumors (7.44%) (13,14).

In our study ,there were 96 cases of Serous cyst adenoma (66.21 %) , 4 cases of Mature cystic Teratoma , 1 case of Serous cyst adenofibroma (0.69 %) , 1 case of Teratoma with Struma ovarii (0.69 %) . In study by Veena Saxena, commonest benign tumor studied were Serous cyst adenoma 57 cases (57.8%) followed by Mature cystic teratoma 28 cases (22.5%). Similarly, study by Dravid N.V et al showed most common lesion was serous cyst adenoma followed by Mature cystic Teratoma (15,16).

In our study ,there were 12 cases (63.16 %) of Serous cyst adenocarcinoma , 3 cases (15.79 %) of Immature teratoma, 2 cases of (10.53 %) Mucinoius cyst adenocarcinaoma , 1 case (5.26 %) of Krukenberg tumour and Granulosa cell tumour each .In study by Veena Saxena, there were 10 cases (52.7%) of Serous cyst adenocarcinoma followed by 3 (12.5%) cases of Mucinous cyst adenocarcinoma, 2 case(10.5%) of Granulosa cell tumor, 1 case (6.5%) of Dysgermi-noma and 1 case(6.25%) of Krukenbergtumor.

In the present study, the most common specimen (as treatment modality) in malignant tumors was TAH + BSO. In benign and borderline tumors fertility preserving surgery in the form of cystectomy, unilateral salpingo-oophorectomy and oophorectomy were most common surgeries.

Ovarian tumors exhibited the wide spectrum of clinical and histological features. Ovarian malignancies are the second most common cancer among all cancers in the female genital tract. SETs were the most common followed by germ cell tumors. Borderline tumors were encountered more in the mucinous category than serous. Anorexia, ascites, and weight loss were associated with malignant tumors. On grossing presence of solid element makes malignancy more likely. The size of the tumor was not related to the nature of the tumor. In the era of immunohistochemistry and molecular pathology, where the diagnosis is based on these, in the institutes with limited resources, these clinicomorphological features are very helpful for diagnosis and proper management of the patients.

CONCLUSION

Serous cyst adenoma are the most common benign ovarian tumour found in ovarian specimens with peak incidence at 20 – 50 years.

Limitation of the study
Status of Tumour markers were not studied
Ethical committee approval
Taken
Financial support and sponsorship
Nil
Conflicts of interest
There are no conflicts of interest

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