

prevalence of 1–6.3%. There are usually no symptoms or problems related to the subintimal dissection.

The most disastrous complication of BAE is spinal cord ischemia due to the inadvertent occlusion of spinal arteries. The prevalence of spinal cord ischemia after BAE is reported to be 1.4–6.5%. As discussed earlier, the visualization of radicular branches on bronchial or intercostal angiograms is not an absolute contraindication for BAE. However, when the anterior medullary artery (artery of Adamkiewicz) is visualized at angiography, embolization should not be performed. Other rare complications that have been reported in the literature include aortic and bronchial necrosis, bronchoesophageal fistula, non-target organ embolization (for example ischemic colitis), pulmonary infarction, referred pain to the ipsilateral forehead and orbit, and transient cortical blindness. It is hypothesized that cortical blindness develops because of embolism to the occipital cortex, either via a bronchial artery–pulmonary vein shunt or via collateral vessels between the bronchial and vertebral arteries. Nonbronchial systemic arteries can be a significant source of massive hemoptysis, especially in patients with pleural involvement caused by an underlying disease. Missing the nonbronchial systemic arteries at initial angiography may result in early recurrent bleeding after successful embolization of the bronchial artery. Many investigators have documented that a concerted search for nonbronchial systemic arterial supply should be made. In the presence of pleural thickening, nonbronchial systemic feeder vessels that originate from various arteries for example intercostal artery, branches of the subclavian and axillary arteries, internal mammary artery, inferior phrenic artery may develop along the pleural surface and become enlarged as a result of the inflammatory process. Pleural thickening that is noted at chest radiography negatively influences the long-term success rate of BAE. Computerized tomography may help predict the presence of nonbronchial systemic collateral vessels as a source of bleeding in patients with massive hemoptysis. In our experience, pleural thickening of more than 3 mm and tortuous enhancing vascular structures within hypertrophic extrapleural fat seen at contrast-enhanced CT are signs of nonbronchial systemic arterial supply in patients with massive hemoptysis. Use of CT to predict the presence of nonbronchial systemic vessels that supply a parenchymal lesion is important prior to BAE because it helps in localizing the site of bleeding and in selecting systemic vessels for the interventional approach.

In summary, the current management of massive hemoptysis is initial treatment with BAE followed by medical or surgical therapy of the underlying

disease. Bronchial arterial catheterization in humans via a percutaneous approach has been practiced for 33 years,³ initially for direct chemotherapy treatment for bronchial malignancies and then for the embolization of patients with severe hemoptysis. The safety issues that have arisen during these procedures include inadvertent occlusion or embolization into the anterior spinal artery which in a small percentage (highest 5%) of humans arises from one of the branches of the bronchial arteries. Finally, the issues of edema due to arterial engorgement and immune response to the vectors must be quantified at various dosages and volumes by histological examination. In addition, CT may be helpful in predicting the presence of nonbronchial systemic collateral vessels, which can be a significant source of recurrent hemoptysis after successful BAE.

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From the Department of Radiology, The First College of Clinical Medical Science of China Three Gorges University & Yichang Central People's Hospital, 443003, China. Address correspondence and reprint requests to Dr. Daihongxiu, Yichang City in China. Tel. +86 (717) 6485625. E-mail: daihongxiu22@yahoo.com.cn

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Histopathological audit of appendicectomy specimens

**Khalid U. Syed, MBBS, M.Phil,
Imran Ul-Haque, MBBS, MD.**

Acute appendicitis is a common abdominal emergency requiring hospital admission and surgery. The risk of developing appendicitis is

maximal in childhood and declines steadily with increasing age. Dietary factors including low fiber and high protein diet are well-known risk factors for appendicitis. The overall mortality for appendicitis ranges between 1-5% with a high incidence if perforation is present.¹ The adult appendix averages 10 cm in length, arising from the posteromedial wall of the cecum, approximately 3 cm below the ileocecal wall. Its position in the abdominal cavity is variable, being described as retrocecal, retroileal, perileal, subcecal or pelvic. This variability in location may influence the clinical signs, and symptoms associated with appendicitis. While the physiologic role of the appendix is unproved, an immunologic function is suggested by its content of lymphoid tissue.² It seems that appendiceal obstruction followed by secondary bacterial invasion causes most appendicitis. The continued fluid secretion by the mucosa of an obstructed appendix distends the lumen, eventually exceeding venous pressure and leading to tissue ischemia and ultimately necrosis. Causes of obstruction include fecaliths, calculi, tumors, parasites, foreign bodies or rarely barium, in one third of patients without apparent obstruction, infection by viruses, parasites, bacteria or possibly trauma or postoperative fecal stasis may be involved.

A retrospective study was performed at Al Midhlab General Hospital, Al Qassim, Kingdom of Saudi Arabia, to determine the pattern of histological diagnosis found in appendectomy specimens. It is also an attempt to study the degree of uniformity and clarity of reporting this common surgical specimen. The surgical pathology files in the histopathology laboratory in our hospital were searched for appendectomy specimens during the period from 1995-2004 and 829 appendectomy reports were found. All appendix histology slides, and their reports were studied. Patients data such as age and gender were also recorded. All cases were classified according to various pathological diagnoses: 1) acute appendicitis, 2) acute perforating appendicitis, 3) chronic appendicitis, 4) normal including fecalith and fibrosis, 5) periappendicitis and 6) other features such as tumors and parasites. There was full agreement in 720 cases and discrepancy in 109 cases. Out of the 829 appendectomies performed during the study period, 495 (60%) showed the histological diagnosis of acute appendicitis, 182 (22%) showed acute perforated appendicitis. The total number of normal appendices was 110 (13.2%) with a male to female ratio of 1:14. Parasitic infestation was present in 16 cases (2%). Where *Enterobius vermicularis* and *schistosomiasis* were the most common parasites in our study. Fecalith without evidence of acute inflammation was seen in 5 cases. Tumors of appendix were present in 6 cases. Carcinoid tumor was incidentally diagnosed in 5 cases (0.6%) and

Table 1 - Pathological diagnosis.

Diagnosis	n of cases	(%)
Acute appendicitis	495	(60)
Acute perforating appendicitis	182	(22)
Peri appendicitis	10	(1.1)
Normal (fibrosis and fecalith)	110	(13.2)
Others (tumors and parasites)		
Tumors	6	(0.7)
Parasites	16	(2)
Chronic appendicitis	10	(1)

one case of mucocoele, out of 6. Features of chronic appendicitis and periappendicitis were seen 1% in each. Fibrosed appendices were seen in 6 cases (0.7%). Out of 829 cases, 380 cases (45.9%) were present in the group of 11-20, and the minimum number of cases in the age group above 60.

In our study, there was full agreement in 720 (86%) cases and some degree of discrepancy in 109 (14%) cases, out of 829 cases. Herd et al³ reported 27% discrepancy out of 100 cases, however, in our study, numbers of specimens were more as compared to Herd et al³. Therefore, it is suggested that greater clarity can be achieved using 6 reporting categories, as shown in **Table 1**.

The appendix in well-developed acute appendicitis shows fibrinous exudate covering part or whole of the external surface. An appendix was coded acute appendicitis if microscopical examination revealed the presence of transmural acute inflammatory cells or mucosal ulceration. This finding was present in 60% of all cases. There is some disagreement to those appendectomy specimens that show minor degrees of inflammation. The terms normal, early, subacute or resolving was used. The term of early acute inflammation is used by some to indicate the presence of a small number of mucosal/luminal polymorphs with or without mucosal ulceration. While subacute and resolving inflammation signifies luminal/intraglandular polymorphs or chronic inflammatory cells in the submucosa/muscularis layers. Chronic appendicitis as a pathological, or clinical entity, has been greatly disputed. In our study, we considered recurrent appendicitis as chronic appendicitis. Periappendicitis was diagnosis in 2% of the cases. The type of inflammation was used in cases where inflammatory process involves the serosa only, indicative of inflammation spread from the nearby organs, but not in the appendix itself, and the

finding of periappendicitis is of clinical significance as patients need further follow up and investigations to ascertain the cause of periappendicitis. Parasitic infestation was found in 2%. Most patients had pin worms (*Enterobius vermicularis*). Two cases of schistosomiasis in the appendix were also reported during this study. Tumors were found in 6 cases out of 829. Carcinoid tumors were the most common type found in 5 cases. Carcinoid are the most common tumor of the appendix and are found in approximately one in 300 routine appendectomies. Carcinoid tumors of the appendix are found in the tip of appendix and are seen as incidental findings during pathological examination. Other sites of the appendix should also be examined for carcinoid involvement and tissue sections, from the base of the appendix or any wall thickening should be submitted for microscopical examination to rule out any malignancy or any other pathological abnormalities. Non carcinoid epithelial tumors, described by Carr et al,⁴ are simple mucocoele, hyperplastic polyp, adenoma, mucinous tumors of undetermined malignant potential, adenocarcinoma.

In our study, the male to female was 1:14 in normal appendices; however, others found a higher incidence of normal histology in females as compared to males. In our study, we rendered histological diagnosis of normal appendix in 3 categories; first absolutely normal appendix, secondly, presence of fibrosis without any inflammation and thirdly presence of fecalith. Some authors have suggested that normal appendix may not be normal. Wang et al⁵ showed a substantial proportion of histologically normal appendices showed clear evidence of an inflammatory response as increased cytokine expression. Presence of fibrosis alone is not indicative of chronic or recurrent acute appendicitis as some pathologists suggest. Fecalith, which is calcified lamellated fecal mass, present in the appendix, can be an incidental finding in the normal appendix.

In our study the rate of acute perforating appendicitis was 22%, which is consistent with other studies but still in the upper limit (up to 25%). A surgical doctrine suggests a decrease in perforation rate will be achieved by an increase in negative laparotomy rate in suspected acute appendicitis. Improved clinical evaluation is suggested as a remedy for a high rate of negative laparotomies, without increasing the perforation rate.

In conclusion, 829 appendectomies were reviewed, out of this 60% were diagnosed as acute appendicitis, normal appendectomy rate was 13%, perforating appendicitis 22% and 4.8% showed other histological diagnoses. Normal looking appendices may show evidence of inflammation by conventional histological examination. In our hospital, we subjected all appendix specimens to

histopathological examination. Some have suggested that gross examination alone may be sufficient, usually since unexpected microscopic findings are rare. We however, favor that microscopic examination is important to detect abnormal pathologic findings, especially cases of tumors like carcinoids or periappendicitis, which might alter the subsequent management or follow up. We recommend that a careful evaluation with improved attention to early prodromal symptoms and an astute diagnosis by an experienced surgeon can decrease the incidence of undetected appendicitis and its complications.

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From the Department of Laboratory Medicine, King Fahad Specialist Hospital, Al Qassim, Kingdom of Saudi Arabia. Address correspondence and reprint requests to Dr. Khalid U. Syed, Histopathologist, Al Midhlab General Hospital, PO Box 253, Al Midhlab, Al Qassim, Kingdom of Saudi Arabia. Tel. +966 (6) 3422206. Fax. +966 (6) 3421325.

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Relationship between physical activity level and health related quality of life among university students

Arzu Daskapan, PT, PhD, Emine H. Tuzun, PT, PhD, Levent Eker, MD.

Regular physical activity is an important determinant of healthy life style. Many epidemiologic and clinical research documented that physical activity has many positive effects on cardiorespiratory function, muscular strength, and mental health in adults.¹ It is not well known